PROJECT LESSONS IN ORCHESTRATION

ARTHUR E. HEACOX

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PROJECT LESSONS IN ORCHESTRATION

BY

ARTHUR EDWARD HEACOX, Mus. B.

Author of

Harmony for Ear, Eye, and Keyboard,
Keyboard Training in Harmony, etc.

A MUSIC SUPPLEMENT CONTAINING THE MUSIC REQUIRED IN THE LESSON ASSIGNMENTS OF THIS TEXT IS AVAILABLE IN A SEPARATE VOLUME

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PREFACE

The central idea of this book is to provide a series of interesting "lesson-problems" in orchestration, arranged in groups according to the subject in hand, with each group leading to its own logical "project" of the student's choice.

The lessons are short, planned to require an average of about two hours each in preparation, while the project—orchestrating a piece for which the student is prepared by the lessons leading up to it—may require several hours. It is in the projects that the student demonstrates his ability and his grasp of the lessons which lead to each successive stage of the course.

To begin with, the student is given a bird's-eye view of the field. This, which embraces a list of the instruments of the symphony orchestra and the opening page of an important orchestral score, is followed immediately by the short lessons in arranging, which lead to the successive projects already mentioned.

One group of lessons leads to string treatment of simple four-part writing, doubling of parts, the addition of filler parts, etc., another to the string interpretation of pianoforte accompaniments, others to bowings, to the use of winds, to combinations, to substitutions; all with a view to the most practicable uses of present day arranging. To this end, historical data, unusual instruments, and much of the usual discussion of crooks, disabilities of natural horns, etc., will be avoided so far as possible. For the same reason, simple directions, and avoidance of controversial matter, form, intentionally, a part of the policy of presentation.

The development of these lessons has largely depended upon three important factors to which the author acknowledges his obligation: (1)

the numerous text-books on the subject, a partial list of which appears in Appendix B, (2) the courtesy of publishers who have from year to year permitted students in this course to orchestrate copyrighted music, and (3) the generous assistance of players of orchestral instruments in Oberlin Conservatory of Music, both faculty and students, who have made it possible for members of the successive classes to hear their own scores well performed.

Arthur E. Heacox

Oberlin, Ohio
January 5, 1928

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LESSON 1

Introduction

1. Orchestration (Instrumentation) is the art of arranging music for the orchestra. This implies an intimate knowledge of the range, qualities, and varied capabilities of all the orchestral instruments, together with a mastery of the essentials of a good course in harmony.

2. In these lessons the harmony is considered a prerequisite—the orchestration proper receiving the student's attention. In these days, a student of orchestration who has not heard at least a small orchestra play, who has never seen a violin, nor noted the difference in tone between a big horn and a little one in the band, is inconceivable. Because of this fact, and furthermore because the number of books which describe all the instruments in detail is very large, the present lessons omit all description not necessary to the problems in hand. For the number of pieces of wood in a violin, the history of the oboe, and all such material the inquiring student is referred to the bibliography in Appendix B.

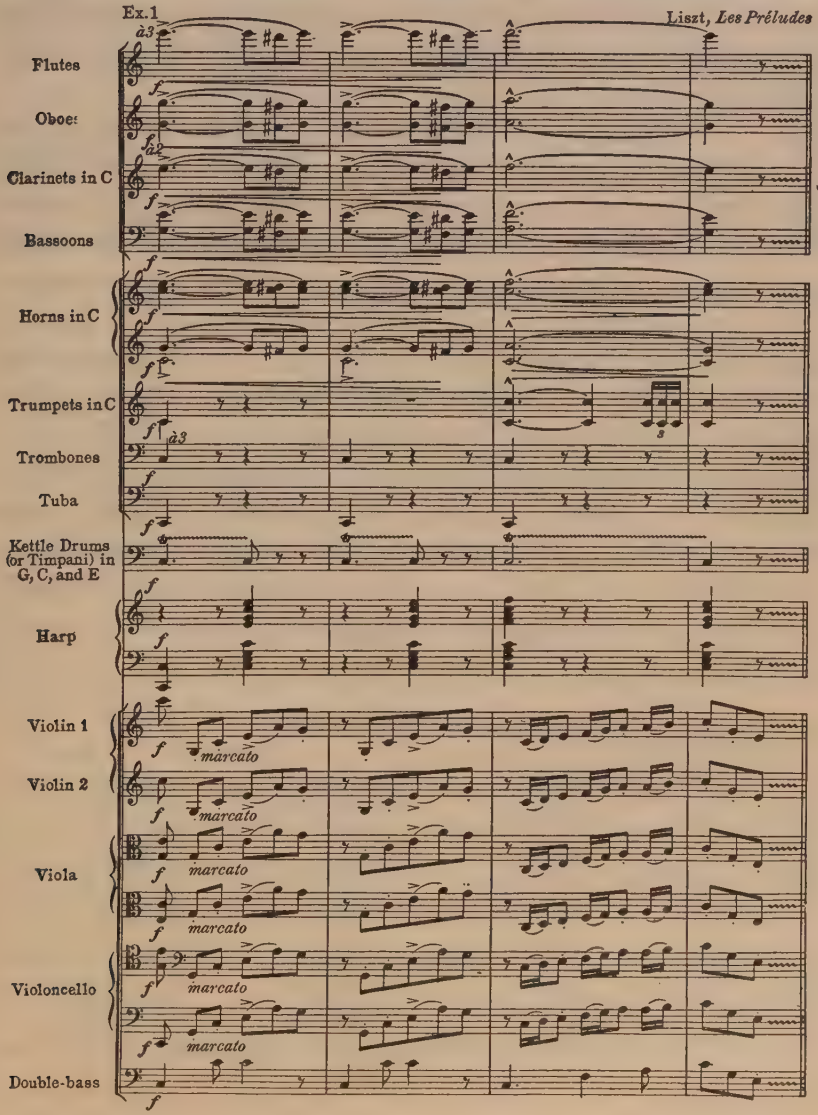
3. The successful arranger must be a good listener. He must be able to hear the orchestral instruments singly and in all sorts of small groups. He should be able to name each instrument by its sound as readily as he would recognize the voice of a friend. If possible, he should play some instrument in an orchestra and listen. Listen with concentration to every part, focus the ear now on this instrument, now on that; again, on one

or another small group as it comes into prominence. In addition to this he should get his hands on the various instruments, learn the "feel" of them quite as a child makes his acquaintance with every object within his reach. Ideally the successful arranger will be able to play at least a little on one instrument of each group and the scale on many others.

4. In the second place, the student of orchestration, if he would be successful even in a small way, must be an intelligent reader of orchestral language. To the eye this language is the orchestral score. The best way to learn this language is to read scores, listen to an orchestra, score in hand, and practice arranging under expert guidance. Let these arrangements be short, easy pieces selected from piano score—the most universal music-idiom—and songs. This is not a question of original composition —one can not profitably learn the grammar of a language and write poetry in it at the same time.

5. Finally, the student should hear his own scores performed. To assure this, he should give the greatest care to keep within the practical range of each instrument. He must depend as a rule upon student, or non-professional, players. If he is to obtain their co-operation the parts placed before them must be easy to read, clean, and free from errors. Their parts must be interesting to them as players also. In this preparation of a score and parts, and in hearing his own work performed, the student will get what no book can give—a thrill of pleasure where fine results confirm his success in scoring a given passage, perhaps disappointment in another strain too weak, too thin, or too thick, possible chagrin at wrong notes in the copies; but through all this will come a quickened imagination, a finer appreciation of orchestral values, and a surer pen.

The Instruments of the Symphony Orchestra

6. The instruments of the symphony orchestra are usually divided into four groups, or "families." These groups, in the

order of their importance, are the Strings, Wood, Brass, and Percussion. If a harp, or piano is added to the score, the place for it is immediately above the strings. The arrangement of the groups in an orchestral score has varied greatly in times past, but present day usage generally conforms to that of Liszt in the example on page 3.

7. The following reference table indicates the customary arrangement by groups. Some scores contain more instruments than are listed here, many employ fewer instruments. The numbers at the left of the page indicate the usual number of each instrument in a full symphony orchestra. Here again the numbers are sometimes greater or less for various reasons. It is not expected that this apparently appalling list will be memorized, but that it will afford a bird's eye view of the field, and a starting point for the treatment of the following lessons. To this page, therefore, the student will often refer. He must not permit himself the "bad guesses" all too often indulged in by the beginner in score reading. Until he knows that "Trombe" does not mean the trombone, that "cors" are not cornets, and that, for example, "pauken," "timpani," and "kettle-drums" do mean the same, he should turn frequently to the following:

REFERENCE TABLE

	No. insts. (Approx.)	*English*	*Italian*	*German*	*French*
WOOD	1	Piccolo	Ottavino	Kleine Flöte	Petite Flûte
	2	Flutes	Flauti	Flöten	Flûtes
	2	Oboes	Oboi	Hoboen	Hautbois
	1	English-Horn	Corno Inglese	Englisches Horn	Cor Anglais
	2	Clarinets	Clarinetti	Klarinetten	Clarinettes
	2	Bassoons	Fagotti	Fagotte	Bassons
BRASS	(4)	Horns	Corni	Hörner	Cors
	2	Trumpets	Trombe	Trompeten	Trompettes
	3	Trombones	Tromboni	Posaunen	Trombones
	1	Bass-Tuba	Tuba	Bass Tuba	Tuba basse

(Till about 1850 the Ophicleide supplied the low brass bass)

	English	*Italian*	*German*	*French*
PERCUSSION	2(3) Kettle-Drums	Timpani	Pauken	Timbales
	1 Side-Drum	Tamburo	Kleine Trommel	Tambour (mil.)
	1 Bass-Drum	Gran cassa	Grosse Trommel	Grosse caisse
	Pr. Cymbals	Piatti (cinelli)	Becken	Cymbales
	Set Chimes	Campane	Glocken	Cloches
	Set Chime-Bells	Campanetta	Glockenspiel	Carillon
STRINGS	12 to 16 Violins I	Violini	Geigen (Violinen)	Violons
	10 to 14 Violins II	*(S. form: Violino)	*(S. form: Geige)	*(S. form: Violon)
	8 to 12 Violas	Viole (S. form: Viola)	Bratschen	Altos
	6 to 10 Violoncellos	Violoncelli	Violoncelle	Violoncelles
	4 to 8 Double-Basses	Contrabassi	Kontrabässe	Contrebasses
	*(S. forms:	Contrabasso	Kontrabass	Contrebasse

8. The above table, though not complete, will meet most requirements. Additional instruments, when used, would appear with their respective "families" according to their compass; for example, the double-bassoon, just below the bassoon. The celesta, like the harp or piano, would appear just above the violins; the xylophone would find place among the "percussion." In school orchestra scores the piano part is often printed below everything else. Voice parts are usually placed *between* the cellos and the violas.

9. The composer indicates all the instruments needed for a Movement, or "Piece" on the first page of his score, including the "key" required for certain instruments like the clarinets, horns, or timpani. After this first page, he may omit from the score all the instruments which are not to be used for a time, but every such change must be clearly shown at the beginning of the page concerned. For all this, however, the student should go directly to the scores themselves. First, a bird's eye view. In succeeding lessons, the groups will be studied in the order of their importance.

*Singular forms.

Assignment 1

Make a "tour of observation" through the miniature scores which are a part of this course (see p. 177), noticing especially the various groupings of the instruments at the beginning of the different movements. Bring copied in ink the first seven measures of the *Wedding March*, p. 58, Mendelssohn, *M. N. D.** This will fill the first page of your MS book. In making your copy, leave a two-inch margin at the left for the names of the instruments as printed in the score, and underneath each name, as copied from Mendelssohn, write the English equivalent. Rule a line in your score for the piatti. Copy expression marks, slurs, stems of notes, etc., with fidelity to the original. You will need everything you learn from this detail work in succeeding assignments.

(The *Ditson Manuscript Music Book, No. 1*, is recommended for the first twenty lessons, and *No. 4* for the remainder. When the course is completed, these books will form two small volumes of valuable models of many types of orchestration.)

LESSON 2

The Strings

10. The *Strings* consist of first violins, second violins, violas, violoncellos (cellos), and double-basses (basses). The upward limit of each instrument depends greatly upon the skill of the performer. Practical orchestral range lies about midway between the easy school orchestra range and the solo range. Within its compass, each instrument affords all the diatonic and

*Midsummer Night's Dream.

chromatic tones. Strings played without being touched by the left hand are called *open strings.* The easiest keys for the strings are those containing the most open string tones.

11. Though divided into "firsts" and "seconds," the violins as instruments do not differ from each other, but their functions in the group often vary widely. In general the second violins lack personality. Their service is indispensable but their role is humbler. They should seldom be asked to play as high as the "firsts." This applies to the other instruments when divided.

12. In the school orchestra a third violin part is now frequently written to be played in the absence of the viola. This is a makeshift, though certainly justifiable and often advisable under certain conditions, but a third violin can not supply the characteristic deep quality of the low string on the viola. In fact nothing else can really fill the "hole" that results from the absence of violas, but many a small orchestra is obliged to get along without them and arrangers are very skillful in their efforts to meet the resulting handicap.

13. Music for the viola is written in the alto clef (middle C on the third line) ; but the G clef is used when high notes require many leger lines. The point where this change is made is not fixed.

14. Music for the violoncello is written in the F clef, the tenor clef (middle C on the fourth line), and in the G clef. For a school orchestra it is best to use the F clef only. A cello part too high for this is pretty certain to be uncomfortably high for amateur players.

15. Music for the double bass is written in the F clef, *an octave higher than it will sound.* This is therefore a *transposing instrument,* the only one among the strings and one which makes no trouble; but the actual range of the instrument should be

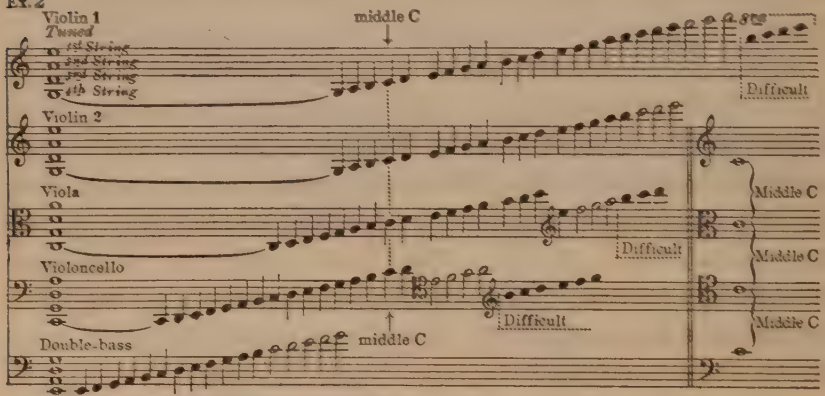
borne in mind. The cello and bass written in unison will therefore *sound in octaves.*

Tuning and Recommended Ranges of the Strings

(a) Easy school orchestra range: all the quarter-notes with stems.
(b) Practical range for general orchestra work: all notes with stems.
(c) Solo resources, better avoided: the black notes without stems.

These instruments have all the intervening chromatic tones.

Ex. 2



Written—Sounding one octave lower than written

16. The strings are by far the richest and most expressive group in the orchestra. "Although very distinct, the timbres which they embrace have a perfect homogeneity; they compose a vast chorus whose ideal voices attain the extreme musical limits from low to high."* Mastery of the technique of writing for the strings is of the first importance. Poor treatment of the strings —poor orchestration.

17. In their range of expression the strings have almost limitless possibilities, in flexibility they meet every musical need; their tone does not pall, whole movements are sometimes written for strings alone.

*Gevaert.

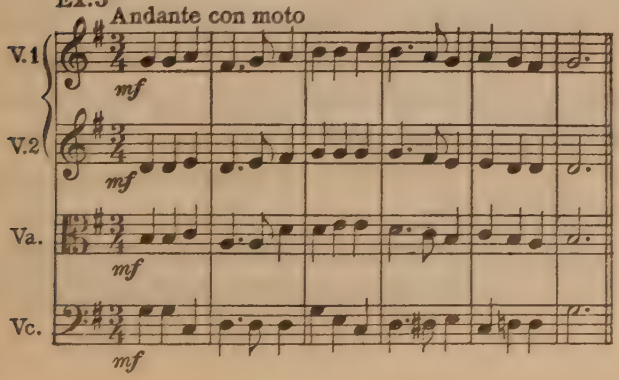
18. The first lesson problem is easy. One can do it and be certain that it will sound well. Any simple song, harmonized in four parts, like a hymn-tune, provides in its soprano, alto, tenor, and bass, a part for first violin, second violin, viola, and cello respectively. Each part is written on its own staff, the four staves comprising the score. Abbreviations of the names of the instruments in the margin is sufficient for manuscript. Dynamic marks, *p*, *f*, etc., are placed under each part, but a tempo mark, like *Andante*, is placed at the top of the score and suffices for the group.

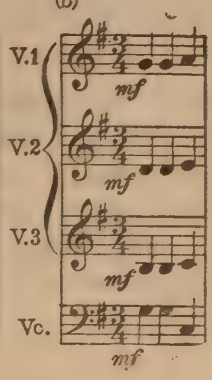
19. Stems are turned down for notes above the third line, and up for those below it—a convention in the interest of good appearance. Notes that are to be struck at the same instant must be copied in a vertical column. Carelessness in these matters is inexcusably crude. Here follows a model. Study it, verify the points just mentioned, and you are ready to proceed with the assignment.

20. A word of warning: the alto clef is perfectly adapted to the viola's general tenor compass. Be careful not to copy the part an octave too low. Compare the viola part in Ex. 3(a) with the same notes in the third violin, Ex. 3(b).

America

Ex. 3 (a)



(b)

Simple as these first assignments may seem, they are important and in no case should be omitted.

Assignment 2

Following the model, Ex. 3(a), score *America* for a quartet of strings.

Also score *America*, as begun in (b) for 1st, 2nd, and 3rd violins, and cello. This is a fair substitute for (a), possible, in the absence of the viola, wherever the tenor does not go below the violin range. It is best to copy these two arrangements on opposite pages, the better to compare them.

LESSON 3

21. To obtain increased resonance, a "filler" is often added to the original four part harmony—see the small notes in Ex. 4. This filler is not a true fifth voice in a polyphonic sense, but simply what its name implies, an added part invented by the arranger. It consists partly of chord-tones already present in the harmony, though not always in the same octave, and partly of a portion now of one neighboring part, now of another, as occasion affords. This filler may be used to strengthen momentarily any part but is more in its character as a middle part. In skilful hands it may take on something of the independence of a real fifth voice, but to be a useful filler it must often play a very modest role. An extension of the use of filler material is sometimes practiced so that one might say there were two or more fillers, but duplication of the four real parts is to be preferred to this, at least until the score is very full.

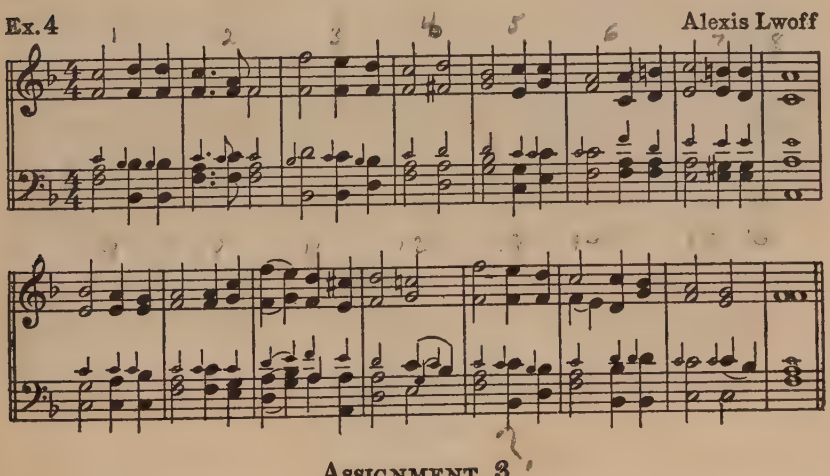
22. Since a filler part has no personality, the consecutive unisons or octaves occasioned by its use are not objectionable. A

good filler will add resonance to correct harmony, it will not make good harmony bad.

23. Simple as arranging a choral may seem, the necessary familiarity with the strings and the understanding of the use of a filler can best be obtained by orchestrating the same music in many different ways. To this end, the following choral (Ex. 4) is given in full with a filler part in small notes, and the student will be shown how to make six different representative arrangements in this and the lessons immediately following. This work is unquestionably too important to be omitted at this point.

Russian Hymn

Ex. 4 Alexis Lwoff



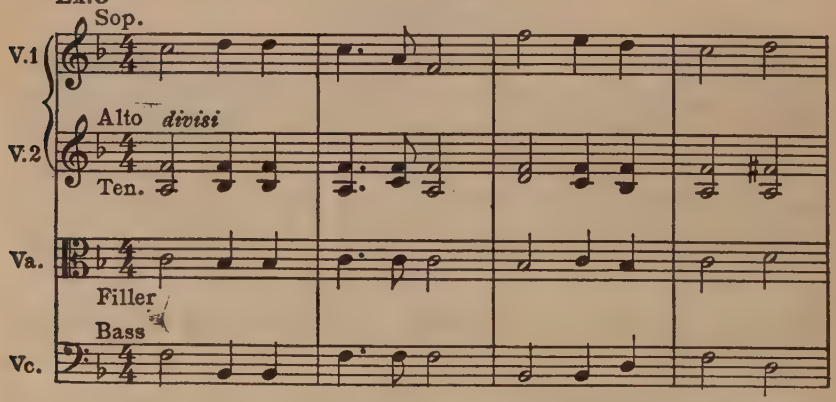
ASSIGNMENT 3

Arrange the *Russian Hymn*, Ex. 4, as begun below. Give the filler to the viola. Mark the second violins *divisi* and give them the alto and tenor. This arrangement will sound a little fuller than it would if the strings played the four-part harmony only. It is the first step toward providing a richer resonance through the use of filler and dupliate parts.

To prepare the lesson, copy the first half of the original (No. 4) across the top of a left hand page, making filler notes very small as shown. Follow this with the string arrangement immediately below it, spacing your measures to fill the staves. Next, copy the remaining half of the original across the middle of the same page and complete the string parts as before. This will just fill one page of the MS book.

When copying the filler into the viola part make the notes the same size as the others, but label each part as in the model, Ex. 5.

Ex.5 Five voices



LESSON 4

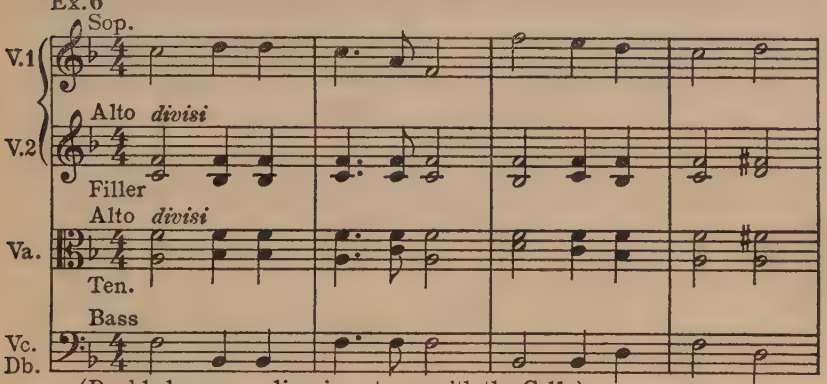
Assignment 4

Arrange the *Russian Hymn* as begun in Ex. 6. Here the double-bass is added, playing the same part as the cello but sounding an octave lower. This combination provides the ideal bass in the string orchestra. The violas now take the alto and tenor *divisi*, and the second violins the alto and the filler, also

divisi. Strings playing *divisi* do not provide more volume, in fact there is some loss in the frank directness of their sound, but this is compensated for in the more beautiful blending of their resonance. In this arrangement, the first violins playing in unison on the melody will bring it out perfectly against the other strings *divisi.*

Seven voices

Ex. 6



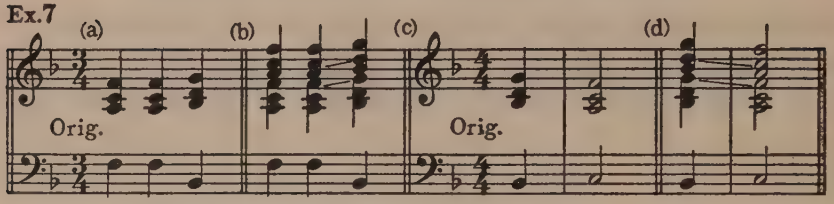
(Double-bass sounding in octaves with the Cello)

LESSON 5

24. As already seen (§ 22), duplication of the parts of correct harmony does not make objectionable consecutive octaves or unisons. This greater freedom from the rules of strict polyphonic writing is characteristic of the "mass-harmony" resulting from duplication and should be clearly understood.

25. Consecutive fifths arising from the superposition of chords of the sixth upon each other are freely allowed, as in Ex. 7.

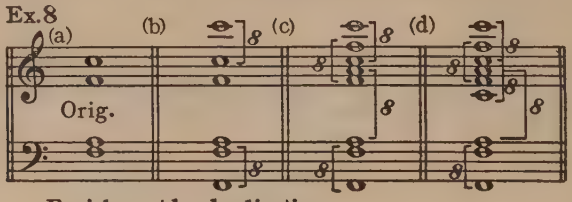
Ex.7



Unobjectionable consecutive fifths

26. Enrichment of a score by duplication of parts in the octave is best made by doubling the upper three parts in their *upper* octave and the bass in its *lower* octave. This will maintain the clarity of the harmony—a matter of paramount importance—and prevent the bass from mixing with the upper parts, Ex. 8(a), (b), (c). At (d) the soprano is doubled in both its upper and lower octave. This is frequent in very full scores, but in every such case the doubling of an upper part downward must not fog the bass part.

Ex.8

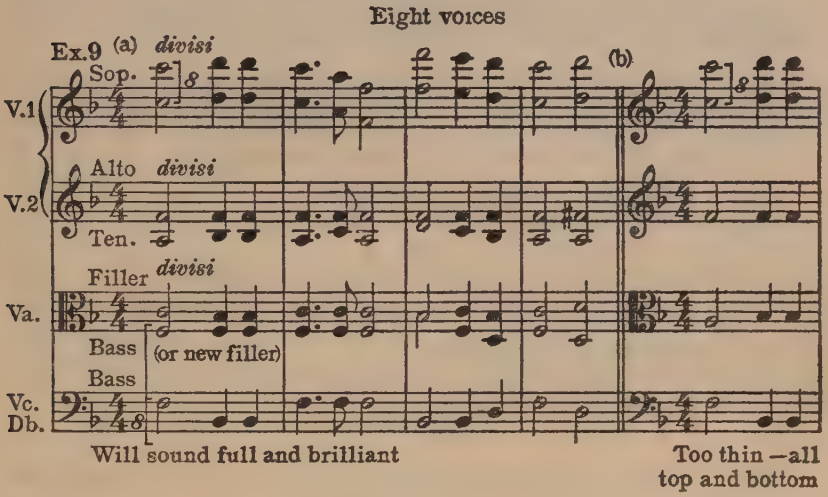


Enrichment by duplication

Assignment 5

Arrange the *Russian Hymn* as begun in Ex. 9(a). Now the soprano is doubled in its upper octave. As before, the bass is doubled in its lower octave. The second violins *divisi* take the alto and tenor. The upper violas take the regular filler throughout; the lower violas, the bass in unison with the cellos so far as their range permits, but when this is impossible the lower violas will play a few notes of filler chosen for the purpose at the dis-

cretion of the arranger. This arrangement will sound both full and brilliant.

An arrangement like that begun at (b) could be made, but this would be too thin in the middle and too much "all top and bottom." It is an example of what to avoid.

LESSON 6

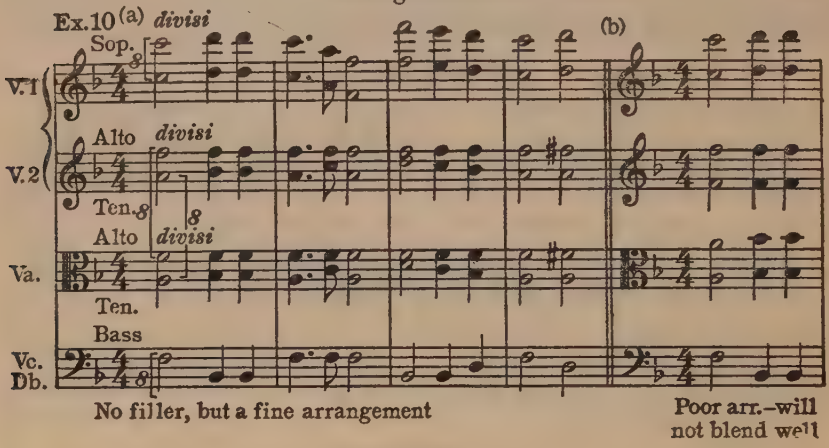
27. A fine arrangement, applicable to many cases, is to double each of the upper parts in their upper octave and the bass in its lower octave. In this case no filler is necessary. To obtain the finest resonance follow model, Ex. 10(a). The violas *divisi* will play the alto and tenor in their original compass; the second violins taking these two parts in their upper octave. The soprano and bass will be doubled precisely as in the last lesson.

These parts could all be played by setting them as in (b), but the instruments would not blend so well.

Assignment 6

Arrange the *Russian Hymn* as begun in Ex. 10(a) with no filler but with all four parts doubled in the octave.

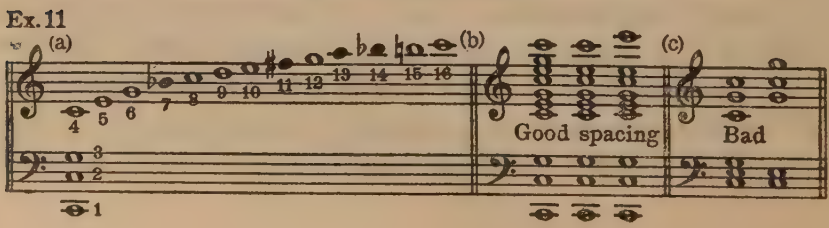
Eight voices



LESSON 7

28. The best distribution of chord-tones is that which conforms to the normal order of the harmonic series, the wider spaces below and the intervals becoming smaller as the upper register is approached. There is no objection to an octave or even a sixth between the upper two parts but the masters have carefully avoided open spaces in the middle of the harmony, and with equal care have sought open spaces at the bottom, Ex. 11.

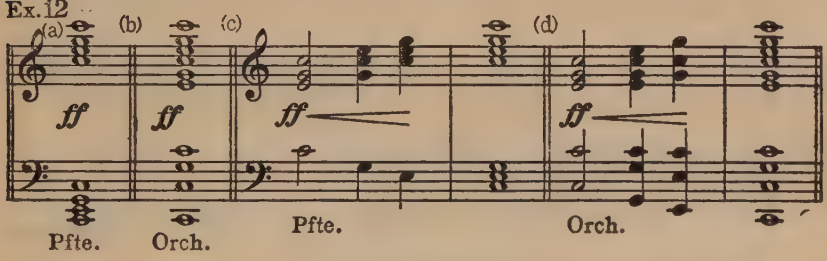
The Harmonic Series



29. The spacing resulting from the various settings of the *Russian Hymn* which you have made in the preceding lessons may be considered satisfactory. When spaces wider than normal occurred in the higher parts they usually resulted from doubling the soprano in its upper octave, or because the upper two parts moved in sixths, both of which methods are good.

30. Empty spaces in the middle of the harmony, often allowed in pianoforte music, are very bad in orchestral writing and should never be permitted. In Ex. 12 notice the chords for the pianoforte and the satisfactory equivalents for the orchestra.

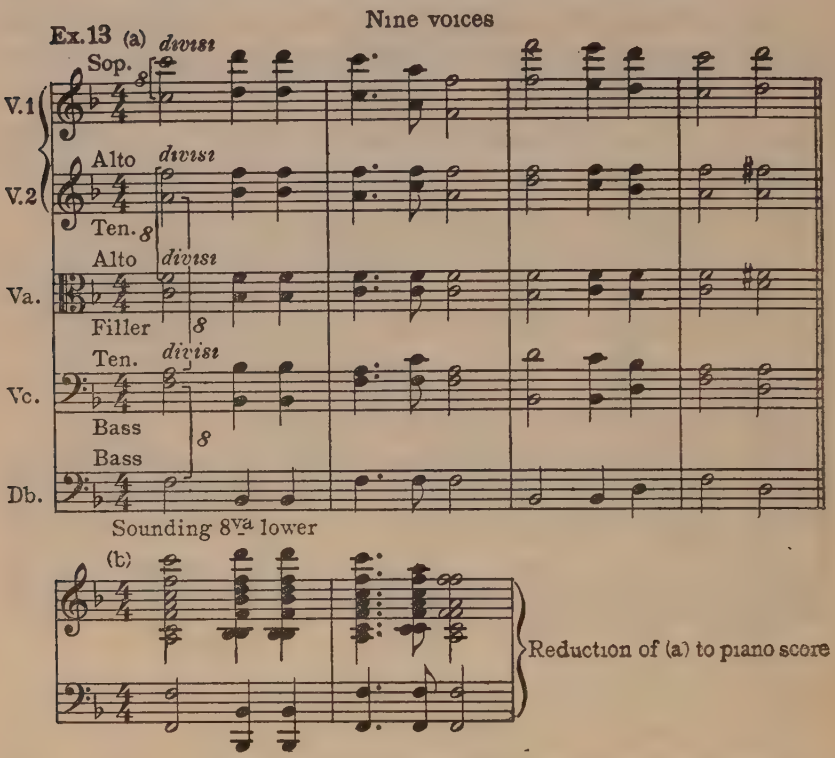
Ex. 12



ASSIGNMENT 7

Arrange the *Russian Hymn* as begun in Ex. 13(a). We now give the double-bass its own staff, the cellos *divisi* will play the bass and tenor, while the lower violas will take the filler. This arrangement doubles all parts, besides using the filler, and will sound rich and full.

In copying this arrangement leave two staves at the top of your MS book. When the first eight measures of the score are completed reduce them to piano score on the two staves saved just above them, by writing seven parts on the upper staff and two on the lower. This reduction will begin as shown in (b). The page will contain the rest of the arrangement without its reduction.



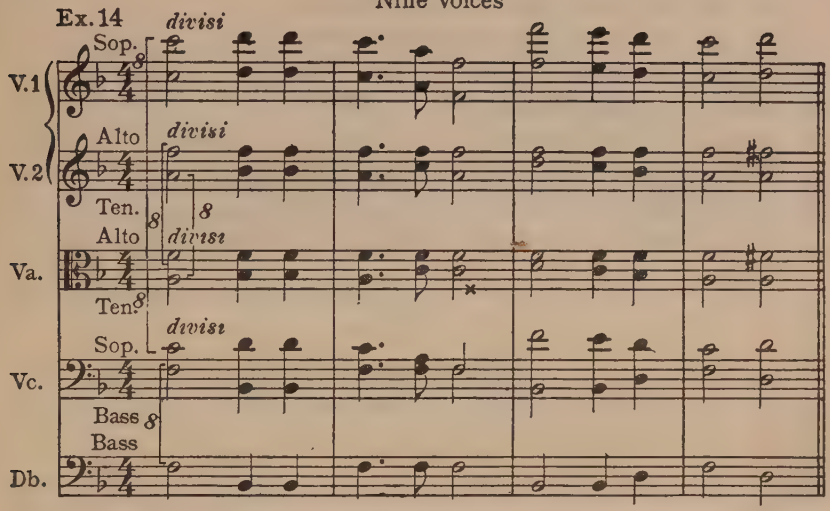
LESSON 8

31. In Ex. 14 the soprano is doubled in both its upper and lower octave (triple octaves). This lower octave of the melody lies in a beautiful part of the cello range and the setting gains thereby a certain richness which is very desirable. The filler nearly disappears—only here and there a few notes, here indicated by a cross, are used (to add perhaps a missing fifth), this being at the discretion of the arranger, that is you. The distribution of the parts will be easily understood by those who have

prepared the preceding lessons. Although there is very little filler, this last setting is the fullest and most effective of our entire series.

Nine voices

Ex. 14



ASSIGNMENT 8

Arrange the *Russian Hymn* as begun in Ex. 14. Save the two staves at the bottom of your page. On these write the reduction of the last half of the piece in piano score, six parts on the upper and three on the lower staff.

PROJECT 1

(To follow Lessons 1 to 8)

Select a fine choral or hymn-tune and give it a full brilliant setting for strings. Use a filler and such duplications as you think most suitable. As stated in the plan of these lessons, the pupil demonstrates his grasp of the work in these projects.

The following numbers, and many similar ones, will be found suitable for treatment in all the foregoing ways.

A Mighty Fortress is our God, Luther
Now Thank we all our God, Johann Crüger
Hark! The Herald Angels Sing, Mendelssohn
O Paradise, Joseph Barnby
Passion Chorale, Hassler, har. by Bach
Austrian Hymn, Haydn
Adeste Fideles (Portuguese Hymn), Anon.
Vox Angelica, J. B. Dykes
Urbs Beata (Jerusalem the Golden), Le Jeune. Trans. to A

LESSON 9

Bowing

32. The term, "Bowing," is used in a two-fold sense meaning (a) the movement of the bow on the strings or the player's style or method; and (b) the manner in which a passage of music is to be played and the signs by which this is indicated. To "bow" a piece of music is to insert the bowing-signs which express the desired style of performance.

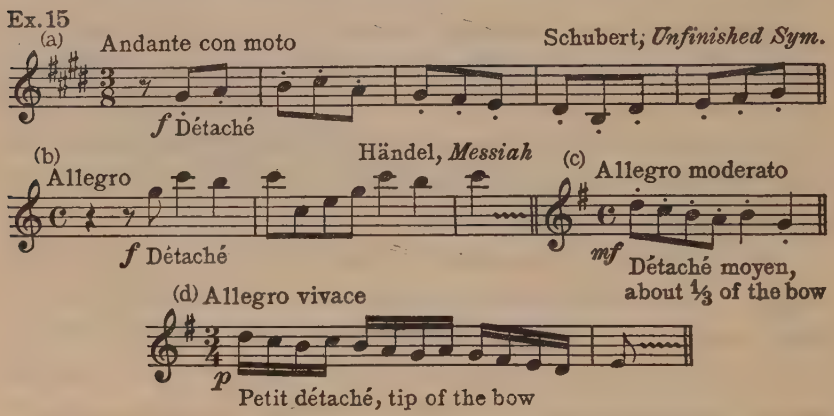
33. Bowing-signs should always be provided by the arranger. The excellence of an orchestral performance depends in large measure on the observance of these apparently minute details. The student who does not play a stringed instrument will need to give this matter special attention, and, in bowing some of his first work, will doubtless find it necessary to rely on the advice of an experienced friend. The long slurs often found in piano music to indicate the boundaries of a musical phrase have no place in orchestral music.

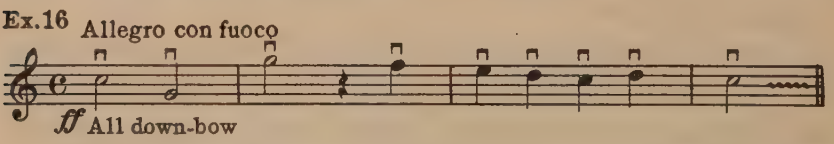
34. The *Down-bow* is marked thus: ⊓ , the *Up-bow* thus: V . Successive notes not connected by a slur (or tie) are played with alternate "down" and "up" bows. On the other hand, while a slur continues, the direction of the bow is not changed.

35. *Détaché* (Broad - Detached, Marcato): long bow strokes, ⊓V . The bow remains on the string. Vigorous passages, distinct articulation. No slurs. Dots (or no dots) over the notes. Nearly any speed, but becoming difficult as the speed

is increased. Significance of the dots not precisely the same as in piano music, Ex. 15(a), (b).

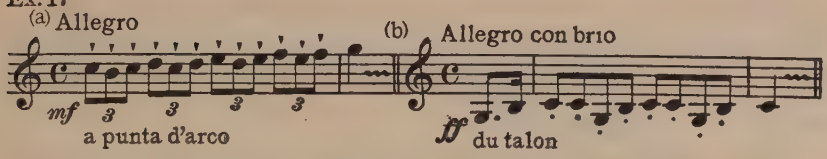
36. *Détaché Moyen* (about 1/3 of the bow), and *Petit Détaché* (tip of the bow) are modifications of the *Détaché*—to meet the needs of increasing speed and lightness, see (c), (d).



37. *All down-bow* to produce the utmost vigor, even to violence. Bow lifted for each note, attack at the heel. Short passages. Speed limited, Ex. 16.

38. *Martelé* (Martellato): a hammer-stroke with the extreme point of the bow, quick, hard, and dry. Dynamic range *p* to *f*. Indicated by strokes (' ' ') over the notes and best accompanied by the words, *a punta d'arco*, Ex. 17(a).

39. An especially vigorous form of martelé is made with the heel instead of the tip. Indicated by . . . or ' ' ' and the words, *martelé du talon*, or simply *du talon*, see (b).

Ex. 17



40. *Sautillé* (Saltando, Saltato, Spiccato, Sciolto balzato): a springing bow, at the middle, utmost lightness and speed. Indicated by ' ' ' . Shades of distinction among these terms, made by some authorities, can not be discussed here, Ex. 18(a).

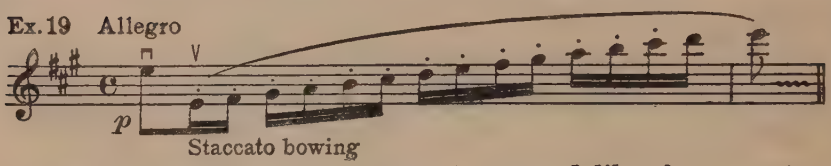
41. *Jeté* (Richochet, Jumping-bow): a form of sautillé. This is a down-bow thrown on the string, picking up a cluster of two or three notes with a hopping motion so rapid that the hair scarcely leaves the string. Notation . . . or ' ' ' under a slur. Characteristic of certain dance rhythms, see (b).

Ex. 18

42. The *Slur*, used in *none* of the preceding bowings, except the Jeté, is an important feature in *all* the following. Instead of alternate "down," "up" bowing, we now come to various clusters of notes played without changing the direction of the bow.

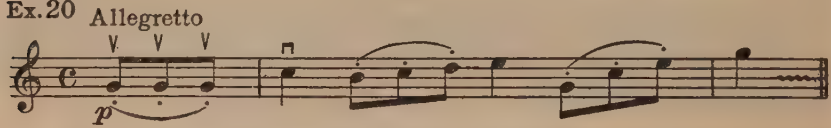
43. *Staccato*: a strictly solo type, performed by an "up" bow (from the point to the middle) picking up a rapid group of distinctly separated notes. To make the marvellously swift succession of little "pushes" each followed by a distinct stoppage of the bow is extremely difficult—practically impossible in the orchestra. Notation, a slur including the entire group, with a dot over each note, Ex. 19.

Ex. 19 Allegro



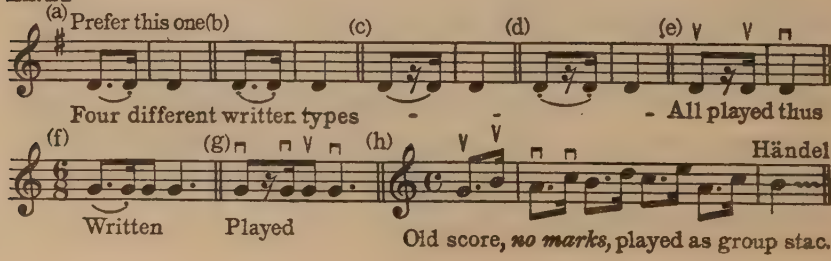
44. *Group Staccato, Type 1*: notated like the true staccato, but limited to small groups of *equal notes*, slow or fast, clearly separated from each other within the group. This is well adapted to orchestral use. Like the true staccato, this is preferably an "up" bow stroke and not so well adapted to forte passages, Ex. 20.

Ex. 20 Allegretto

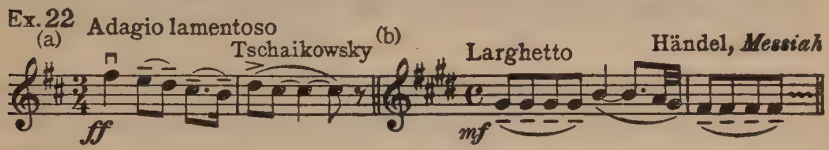


45. *Group Staccato, Type 2*: a conventional notation for groups of two notes of which the second is the shorter and unaccented. Although the bowing signs for these groups vary considerably in different scores, one ruling idea embraces them all, namely: the first note of the pair is distinctly shortened, never the second, and both are played without changing the direction of the bow. Many dotted rhythms in the older scores require a group staccato rendition though no bowing is given, but nowadays the bowing should be supplied unless a down-up bowing is wanted which is rarely desirable, Ex. 21(a) to (h).

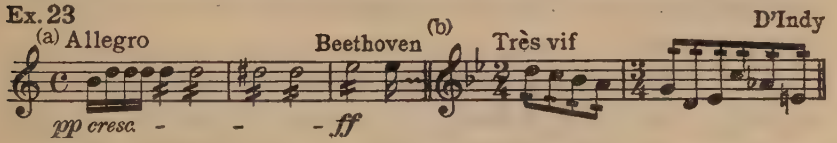
Ex. 21



46. *Louré*: a highly expressive bowing for cantabile passages, notated with a slur embracing the group to be played under one bow, and a dash (-) over each note. Strong pressure of the bow on each note with a minimum pause after it. The groups best limited to two, three, or four notes, since in *f* passages each note requires considerable bow. The intensely emotional rendition signified by this bowing led Tschaikowsky to use it in a rich variety of ways in his *Pathetic Symphony*—a score so fully bowed and so broad in its scope as to afford a liberal education in bowing to the student who will give it intensive study, Ex. 22.



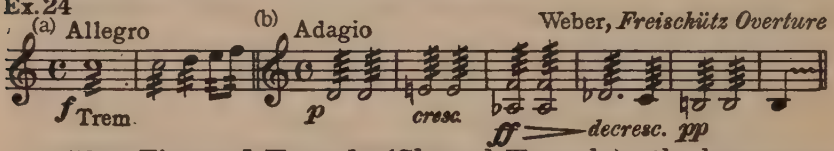
47. *Measured Tremolo*: the rapid reiteration of one (or two) notes by drawing the bow back and forth across the string. This gives an impression of agitation and force frequently desirable. So long as the speed of the note repetition is not excessive, the exact number of strokes can be indicated, written in full at first and then abbreviated to save time in copying, and space as well. Really not a true tremolo but an approach to it, Ex. 23.



48. *Bowed Tremolo* (Tremolo Vibrato): the most commonly used orchestral tremolo demanding the rapidest possible reiteration of the note (or interval). Notation, three or four strokes across the stem of the note (simply above or below a whole-note), and accompanied by the word *tremolo* to avoid possible confusion with the measured tremolo.

49. This device is available through a wide dynamic range and from mysterious effects on the low strings to the most ethereal on the high ones. As a filler for accompaniments in the middle range it is one of the easiest types to fall back upon, and for that reason has been overworked and is in a measure "out of style" nowadays. "Nevertheless," says Widor, "there are cases where there is nothing better to express energy." Care should be taken to express note-values correctly, Ex. 24.

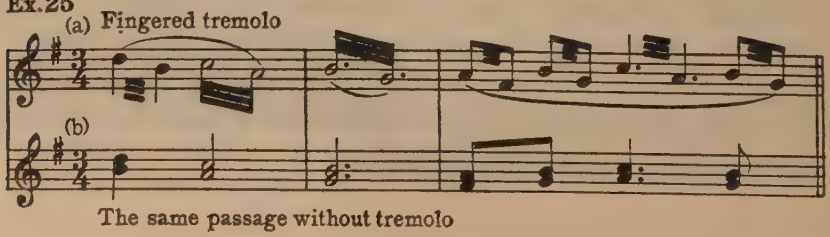
Ex. 24



50. *Fingered Tremolo* (Slurred Tremolo): the bow moves constantly across the string (not strings), and the tremolo is produced by a finger movement similar to that in the trill. The interval is usually a third, fourth, or at most a diminished fifth—what can be done easily *on the same string*. On the viola the perfect fourth, and on the cello a major third should be the limit of a finger tremolo. Any larger interval requires an open string or the use of two strings, neither procedure being first rate, though possible. When made on adjacent strings, limit the violin to the minor ninth, viola to the perfect octave, and cello to a minor seventh.

51. Even more care must be given to the notation than was required in the bowed tremolo; to reckon the time value of any pair of notes but one of the pair is counted, Ex. 25(a), (b).

Ex. 25



52. Fingered tremolo in all the strings, crossed with itself, with various divisions of the violins, violas, etc., is best studied in modern scores. Notable examples are the oft quoted passages in the *Tannhäuser Overture* and other Wagner scores. A beautiful passage occurs in the second movement of Mendelssohn's pianoforte *Concerto in G Minor*. In older scores this type of tremolo is conspicuous by its absence.

53. *Pizzicato*: the bow is not used but the string is plucked. For all short pizzicato passages the bow is kept in the hand, but a little time must be allowed to get it back into position after the plucked notes. A note finished with an "up" bow, however, can be followed almost immediately by pizzicato. The arranger must here, as everywhere, consider the player's convenience.

54. Indication of pizzicato is *pizz.* A return to the bow is marked *arco.* Failure to indicate this return leads to confusion in rehearsal.

55. Pizzicato passages can be found in practically every score. Single notes, intervals, three and even four-note chords which lie in the hand, are available. As a sparkling accompaniment to a solo part, and in many other ways, all or a part of the strings are often effective in this style of playing. The finest resonance for this is in the lower strings of each instrument but this need not preclude the use of any reasonable upper range. It should be added that the lowest string on the double-bass is less resonant in pizzicato than the upper three but not seriously so.

56. The *Mute* (Sordino, Sourdine, Dampfer): this article looks something like a three-toothed comb. When squeezed down on the bridge of the instrument, the tone is greatly altered, becoming mysterious, repressed, or veiled. It is used on all the strings, but for the double-bass so large a mute is necessary, to

really modify the tone, that its use is frankly neglected by many players.

57. Indication of the use of the mutes is usually *con sordini*, *avec les sourdines*, or *mit Dämpfer*, and the arranger must allow several seconds for their placement. Removal of the mutes: *senza sordini*, *otez les sourdines*, or *ohne Dämpfer*.

58. *Col Legno*: a direction, found occasionally, to play with the bow-stick instead of the hair. Little used in serious music. The tone is hard and dry and the stroke is hard on the stick.

59. *Sul Ponticello*: a direction to play very close to the bridge producing a disagreeable glassy tone; not frequent.

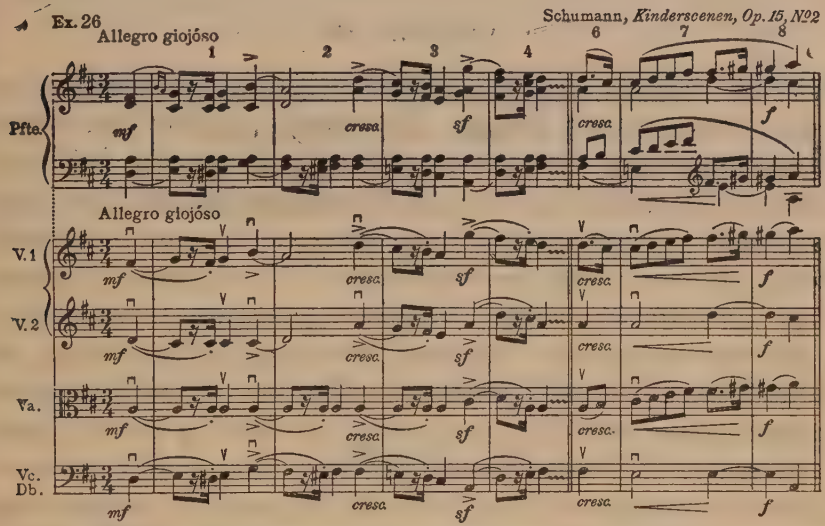
60. *Harmonics*: the flutey tones obtained by lightly touching a string at the half, third, fourth, etc., of its length, are the upper partials of its harmonic series, and are called *natural harmonics*. The sign is a small circle over the note.

By stopping any note with the first finger and touching lightly what would make the tone a perfect fourth higher, one obtains a harmonic two octaves above the stopped note. This is called an *artificial harmonic*. Indication, a diamond-shaped note a perfect fourth above the stopped note.

Assignment 9

Arrange Schumann's *Kinderscenen, No. 2* (*Curiose Geschichte*) for strings. Place the cello and double-bass on one staff. This is simple four-part harmony, but the bowing requires careful attention. It is impossible to use the slurs just as found in the original. In addition to the portions for strings given below as models which should be compared minutely with the piano score, the bowing of every part throughout must be carefully marked. In case of uncertainty, the advice of an experienced

half hair - half wood? -

violinist should be sought. Use a double bar with dots indicating repeat of first eight measures, and of the last twelve. This will make the whole piece just fill one page of the MS book and save much time in copying.

In Ex. 26, the grace notes in measure 1 are purely pianistic. These are better omitted in the violin. In measure 3 the dominant seventh chord is adapted to the hand, with no third and a doubled seventh: this chord is much better spaced in the strings, the third provided and one seventh and one root omitted.

In the strings, two charming characteristics of this piece are (a) the group staccato which falls on the first beat of many of the measures and (b) the *accented down-bow* on the third beat.

The four measures of contrast preceding the return of the principal theme might be done without the double-bass, whose temporary omission and return will afford a bit of variety.

In some editions of the piano score dots are placed under the

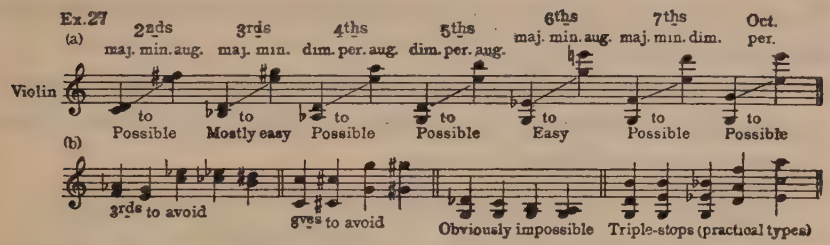
first eighth-note of many of the measures. This dot can not be used in the strings. On the contrary, special slurs and dots are necessary in the bowing of the strings, as shown in the model.

LESSON 10

61. Double-stops (double-notes) require the simultaneous use of two adjacent strings. The term is applied even where open (unstopped) strings are included. In slow to moderate tempo most double-stops are possible and many of them are easy, especially where at least one open string can be used. In rapid tempo all double-stops are too difficult for orchestral purposes and had better be avoided. Triple-stops require three strings, quadruple-stops, four. Intimate knowledge of the strings, of what "lies in the hand" of the player, of how to make the most advantageous use of the open strings, by choosing the best keys and most suitable distribution of the chord-tones, enables the composer or arranger to obtain from skilful players an astonishing amount of full, brilliant, and varied string effects. Without this intimate knowledge, and especially when writing for a young orchestra, double-stops should be of the easiest, or, better yet, marked *divisi*.

62. But occasions arise when you have a quartet of strings, or at most a quintet, and really need a few double-notes to complete the harmony. Again, in the dance orchestra where the strings are few and must "hold their own" against a number of winds, the second violin and viola must be given a great deal of easy chord accompaniment placed in their best range. The cello is given comparatively little double-stopping, the double-bass should have none. In a later lesson on dance music, this matter

will receive further attention. For present needs the following examples are ample, Ex. 27.



63. The viola, though less agile than the violin, can do practically all the double-stops possible to the violin, allowing for the difference of its range—the perfect fifth lower.

64. On the cello it is safe to write perfect fifths, major and minor sixths, and minor sevenths, with both notes stopped. Except these intervals, it is better to limit double-notes to those which permit the use of at least one open string.

Assignment 10

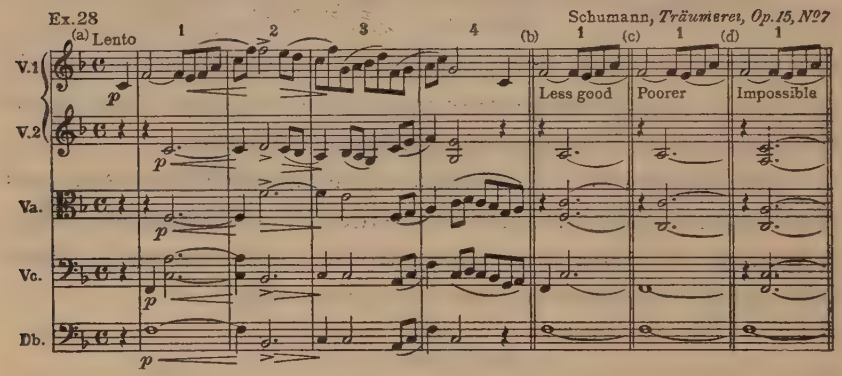
Arrange Schumann's *Träumerei*, No. 7 of the *Kinderscenen*. Use five staves. In measures 1, 5, 9, 13, and a few other similar places, the cello will double the bass on the first beat but play double-notes on the next beat, filling the harmony as shown. There will be a few places where the viola, or second violin, or both, will play double-notes.

This piece requires more care throughout than the one in the last lesson. Notice that the real bass in measure 2, second quarter, is B♭ which the double-bass must hold through the measure. Similar treatment is required in measure 6, bass C♯. In 14, 15, 16, leading to the return of the main theme in 17, it might be well to omit the double-bass and thus obtain a change in the resonance. The double-bass then re-enters on the *a tempo*.

The charming canonic imitation should be allotted to the various instruments with careful attention to their bowing, and the student must not be troubled if the parts cross momentarily here and there.

The long slurs in the piano score must be discarded here, but several of the short ones are usable as shown in the model. Rule this piece so as to fill just two pages.

Ex. 28 — Schumann, *Träumerei*, Op. 15, N°7

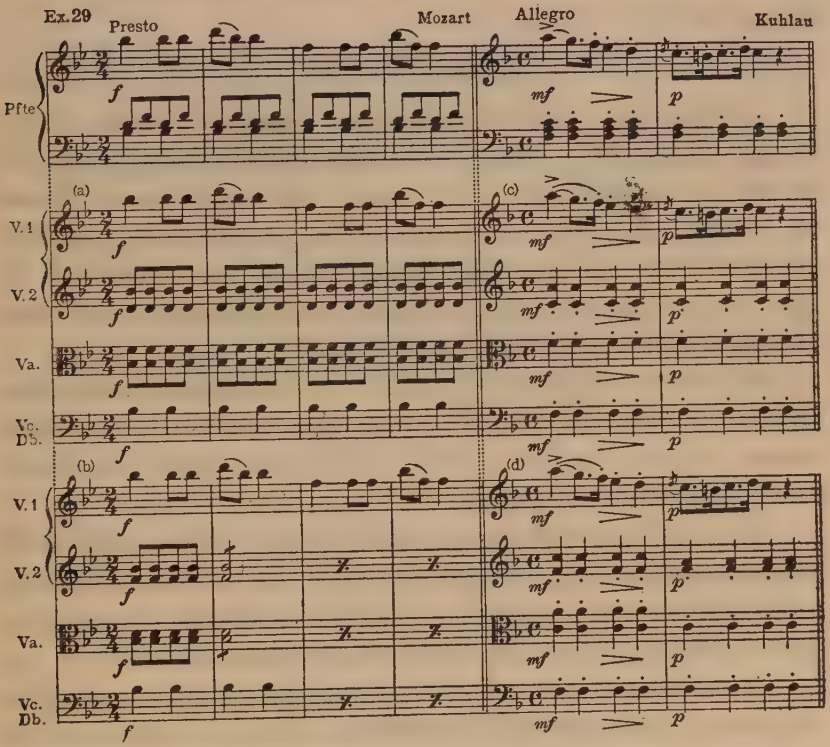


LESSON 11

65. In some piano music the chords for the left hand lie far from the melody, and often rather low. A literal transcription of such music for strings would be poor and thin. Such chords must be lifted and re-arranged—placed where string-chords possess their finest resonance. This resonance lies in the range from about a sixth below middle C to a sixth or seventh above it. Compare the piano scores in Ex. 29 with the string scores just below them. These may be considered typical models of what to do in similar cases.

66. In arranging three-note chords, it is best to give double-stops to the more numerous second violins, and single notes

to the violas. In four-note chords the violas will also play double-notes. Care should be taken to use open notes where possible, and avoid unnecessary difficulties. In practice the arranger seldom uses three-note chords exclusively but mixes these with four-note chords as occasion demands, Ex. 29(d).



67. In the above examples notice that broken eighths become repeated eighths. This is good, but one must not alter a characteristic rhythm, as, for example, changing eighths to sixteenths.

68. Notice the abbreviation signs in (b). Their use to

indicate successive similar measures is legitimate in all preliminary sketches, and is recommended where not confusing to the reader.

69. In (a) the "dovetailing" in the violas and seconds is better than the arrangement at (b), though Mozart used the latter in this particular instance, (*Don Juan, Orch. Score, Peters Ed., p. 118*).

Assignment 11

Arrange the *Andante* of Kuhlau, *Sonatina, Op. 20, No. 1,* as begun in Ex. 30. Notice the lifting and re-spacing of the low chords for the left hand. The violas play single notes *between* the double-notes of the second violins at the beginning, but this procedure does not prevail throughout; in fact, there will be places where the violas only will take double-stops, and still other measures where no double-stops are needed.

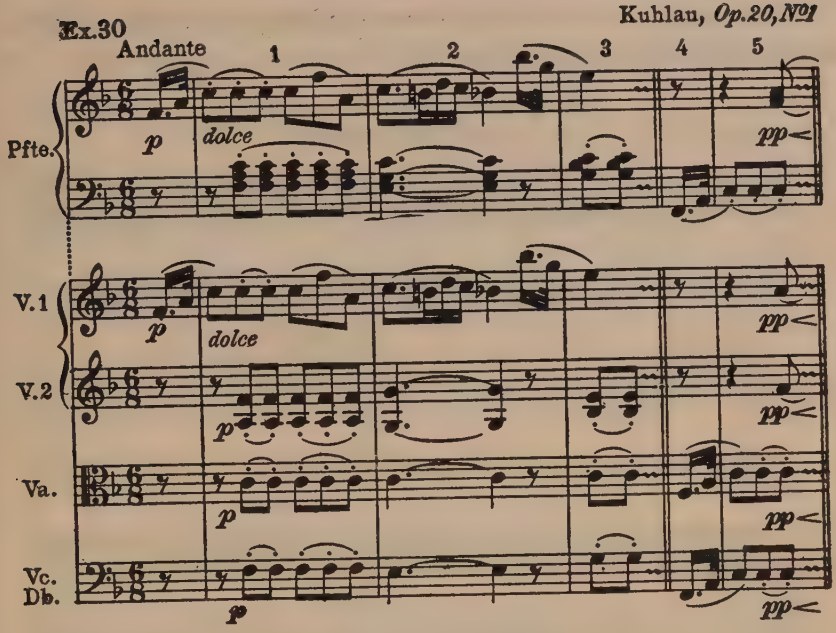
In measure 4, the motive given to the cellos and basses alone would be too bare and thin, hence the viola doubles it in the upper octave. This is a point to notice in all pieces where an isolated bit is taken low on the piano.

Here and there the arranger will supply lacking notes to fill the harmony, but this piece does not need much of this treatment. In adding notes to the middle harmonies, remember that *the bass in inverted chords is rarely doubled in the upper parts.*

In measure 11 the climax is best obtained by using double-stops in both the middle instruments. Place carefully all the expression marks, and observe how frequently bowing signs differ from the slurs in the piano score.

This lesson should use a page and a half of the MS book, with the original piano score copied above the strings as begun in Ex. 30.

Ex.30 Kuhlau, *Op.20,№1*



LESSON 12

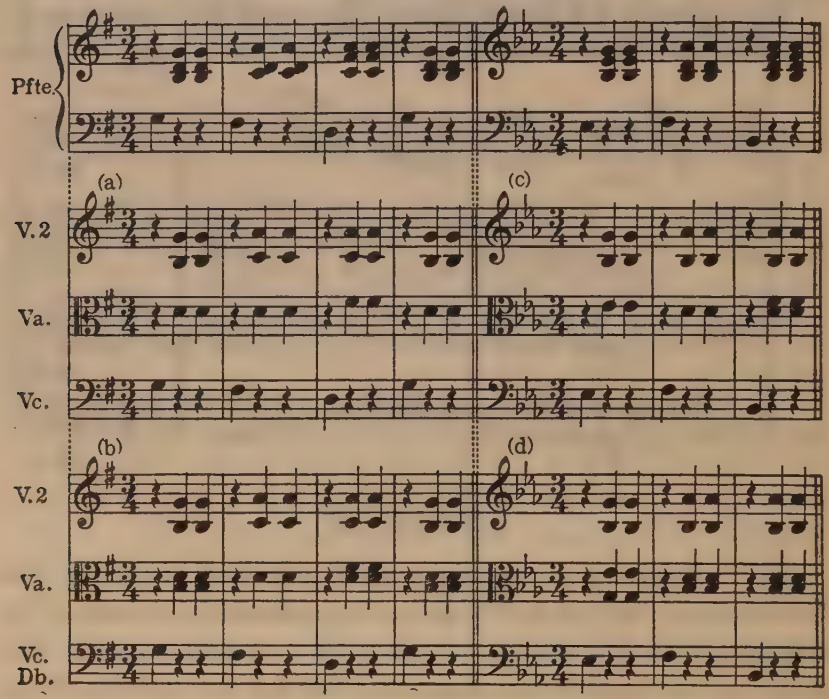
70. Dance music usually presents a melody carried by the first violins and supported by an accompaniment consisting of the bass on the accent, played by the cellos and double-basses, and chords on the after-beats spaced and divided between the violas and second violins in a manner that will provide a good string resonance. Three important principles of good orchestration rule here: (1) the melody must be sufficiently prominent, (2) the bass well defined, (3) the harmonic filling ample and well-spaced.

71. Pianoforte chords which lie in the middle range, as in Ex. 31, need little or no modification for strings and will sound well as arranged below. Double-stops in the viola and a few added notes make (b) and (d) somewhat fuller than the others.

Though very easy to play, these double-stops might well be marked *divisi* for young players.

Well spaced chord accompaniment given to the strings

Ex.31



72. Notice that in all the above "good" examples the chords are spaced within a general compass whose center is middle C. Chords which, in the piano score, lie entirely below middle C must be lifted wherever possible. If left too low the string resonance will be dull and ineffective—altogether bad for dance music.

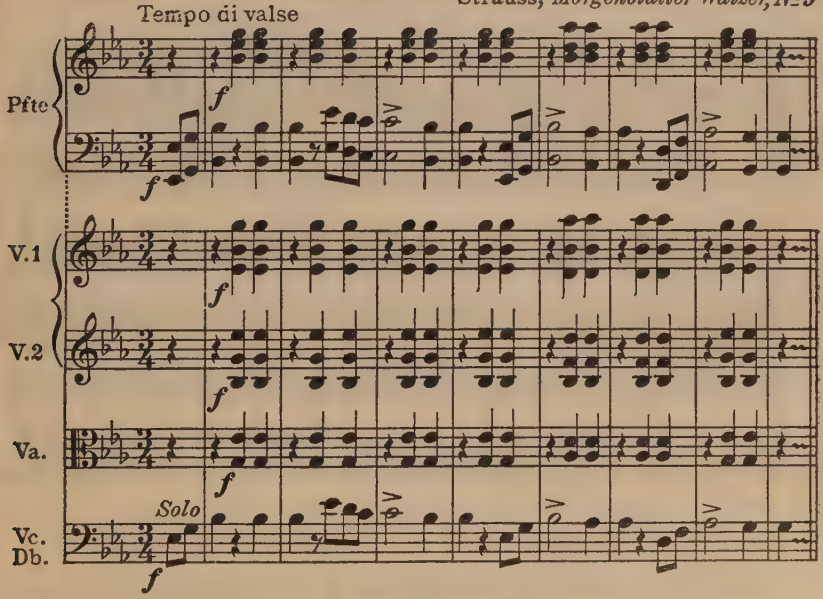
73. A word here about the proverbial "second fiddle." It lies in the very character of dance music to require after-beats in the middle strings, and attempts to avoid this by giving all parts

a "tune" to play, though laudable, are seldom satisfactory. There is much other music where the second fiddles will find a tune in their part.

74. Occasionally the melody is given to the bass, with chords in the right hand, as in the Strauss Waltz, Ex. 32. Here the cellos and double-basses will play the air, and the first violins assist the seconds and violas in the chord accompaniment. Such a passage is often bold and pompous and lends itself to the use of double or even triple-stops as in the following oft-quoted waltz. As scored here, these chords "lie in the hand" and are easy for skilled players, but if desired they could all be marked *divisi à2* or *à3*.

Ex. 32

Strauss, *Morgenblätter Walzer, №5*



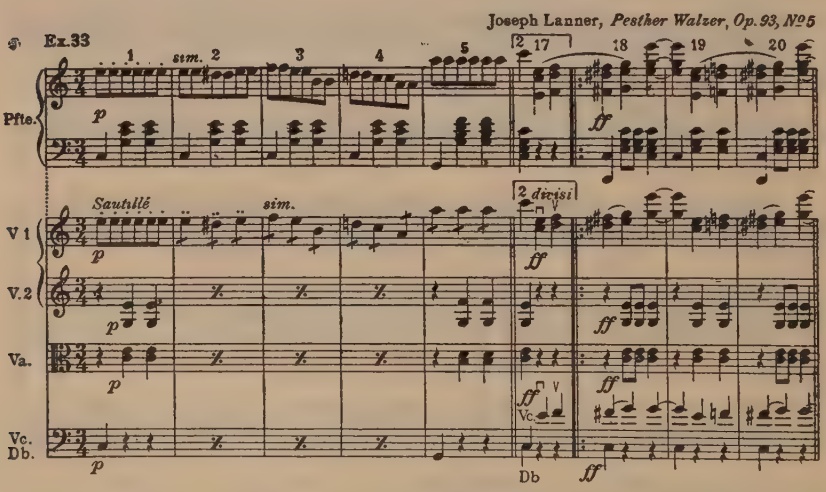
ASSIGNMENT 12

Arrange the *Pesther Walzer, No. 5* (35 measures) as begun

in Ex. 33. In the first strain, these chords lie in a good range and need not be lifted. The opening of the second strain is also shown here (measures 17 to 20). Notice that the chords in this part are lifted somewhat, and, in addition to this, the cello takes the melody in its lower octave, *above these chords.* It will thus double the melody in measures 17-21 and 25-29. The first violins play *divisi* all through the second strain.

Much use of abbreviation signs is possible in the first strain and is advisable in MS of this kind. In the second strain very little abbreviation is possible.

The strong dynamic contrasts, and the exultant bits of cello melody add much to the interest in this waltz.



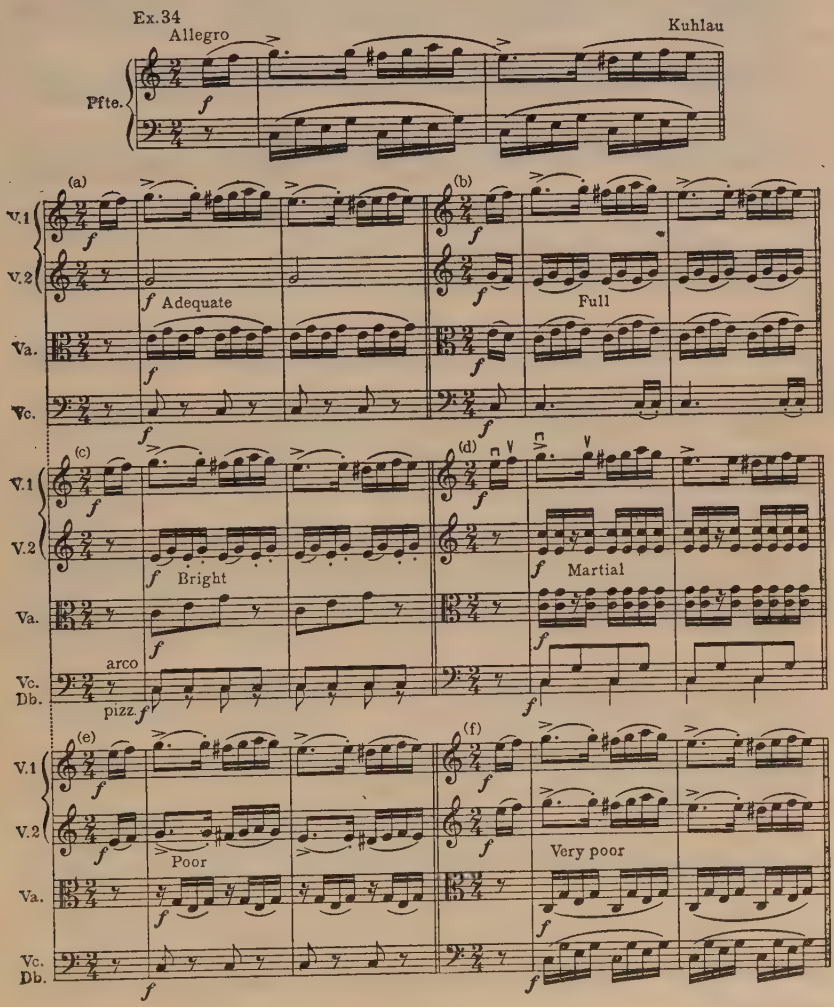
Other suitable numbers:

Strauss, *Morgenblätter Walzer,* No. 5, arrange through the first strain as begun in Ex. 32

Schumann, *The Happy Farmer, Op. 68, No. 10*

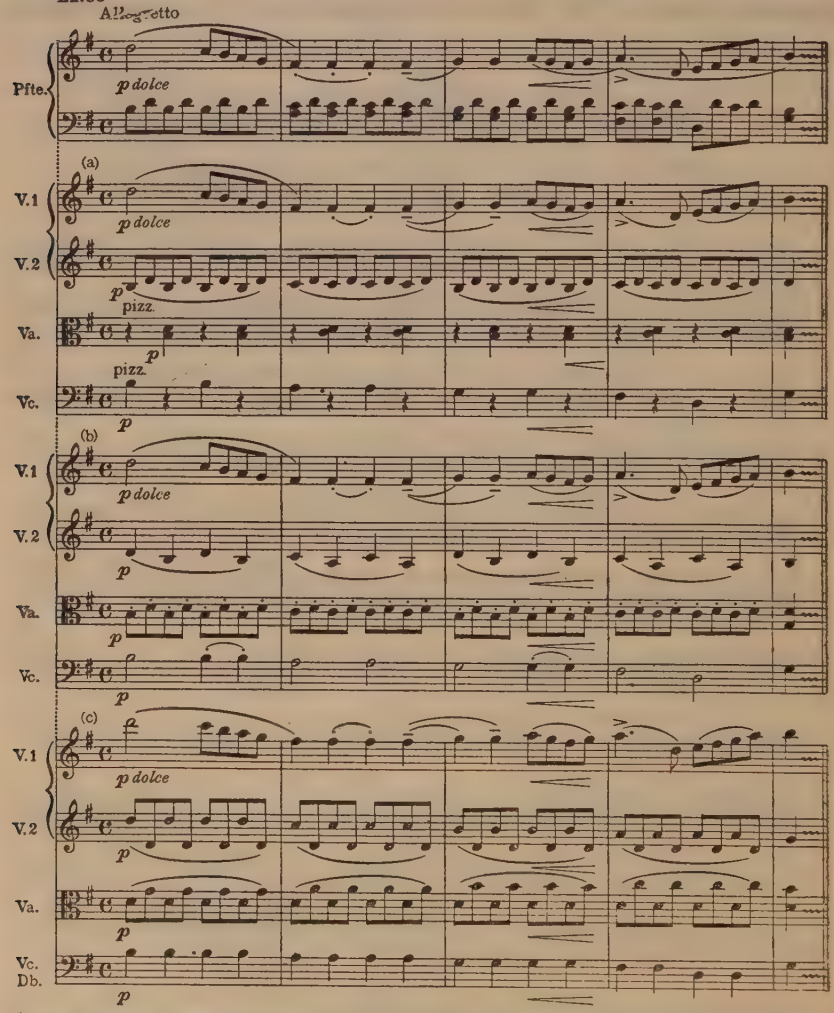
LESSON 13

75. It is profitable to compare in detail several settings of the same phrase. Ex. 34 is a fragment of a Sonatina arranged



in six different ways for the strings. The low broken chords in the original must be lifted to a more suitable range. This is even more necessary here than in Assignment 11. Besides this, the

Ex.35



chords must be supported with a better bass, and some added filler harmony.

In (a), sustained filler in 2nd v. rhythmic figure in viola.

In (b), rhythmic filler in both middle strings, heavier bass.

In (c), crisper style of bowing in 2nd v., chords in viola, pizz. bass.

In (d), martial setting, double-stops, vigorous bass.

In (e), poor arrangement, too much melody for low, weak acc.

In (f), very poor. High melody, low and muddy acc., nothing between.

76. Ex. 35, a quite different type of pianoforte passage, is arranged in three ways, all of which will sound well. Here is no question of lifting low chords, but of what to do when there is no "elbow room" between soprano and bass.

In (a), rhythm in 2nd v. smooth long bows, lower strings pizz.

In (b), rhythm in viola, crisp; cello and 2nd v. sustained.

In (c), melody 8va., room for widely spaced chord-tones.

Assignment 13

Either of the following assignments is sufficient for an average lesson.

(a) Arrange for strings the first sixteen measures of the Rondo in the Kuhlau *Sonatina, Op. 20, No. 1.* The suggestions in previous lessons, and the models under Ex. 34 will be ample for this work.

(b) Arrange the first twenty measures of the *Minuet* in the Beethoven *Sonata, Op. 49, No. 2,* for quintet throughout, or using the double-bass in the last eight measures only. The models under Ex. 35 will afford suggestions, but the student's ingenuity is purposely challenged somewhat in this assignment.

Other good numbers for additional work at this point are:

Kuhlau, *Op. 55, No. 2, I,* 1st 8 measures.

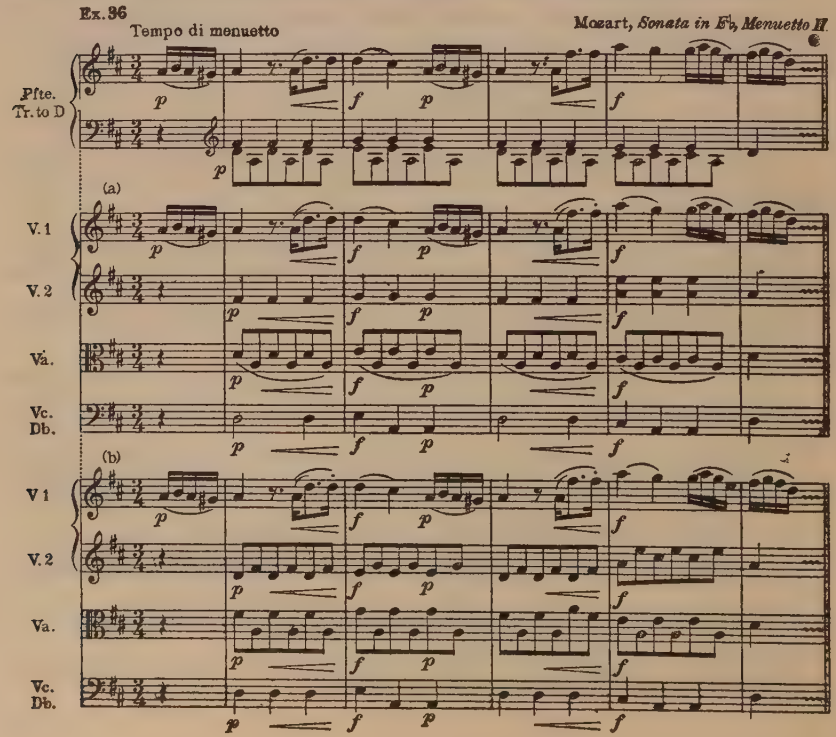
Kuhlau, *Op. 55, No. 4, I,* all.

Kuhlau, *Op. 55, No. 1, I,* 1st 20 measures.

LESSON 14

77. We come now to piano pieces which require more or less real modification to adapt them successfully to the strings. Ex. 36 faithfully reproduced would sound very thin and inadequate in the strings. The repeated low "a" is not the true bass, but a rhythmic element which must be treated as a chord filler. The bass is best supplied as shown in (a) and (b). Either of these arrangements will sound well. They should be studied in detail and compared with the original. Arrangement (b) is fuller and more animated than (a). Transposition to D, from the original key of E♭, is made here to give the strings one of their easiest keys; however, the key of E♭ might have been kept if desired.

Ex. 36



Assignment 14

Arrange for strings the *Cantabile* of Kuhlau *Sonatina, Op. 55, No. 2,* to the middle of the first ending (measure 16). This music invites treatment very similar to that in Ex. 36. A pedal point, "g," in the bass through measures 9 to 12 would make a bit of good contrast, measure 13 resuming the original treatment. In measures 13-14 it would be well to let the second violins double the melody in the lower octave and place some double-stops in the viola. In measure 15 the violas should help the basses with the sixteenth-note figure, as in a similar place in Ex. 30.

PROJECT 2

(To follow Lessons 9 to 14)

Select a short March, Serenade, Waltz, or other piece which lends itself to treatment for strings similar to that in the preceding lessons. Considerable range of choice is now possible to the student, but it would be a waste of time to attempt a type of piece not already discussed and illustrated in the models. Arrange for strings. Keep everything easy to play and easy to read.

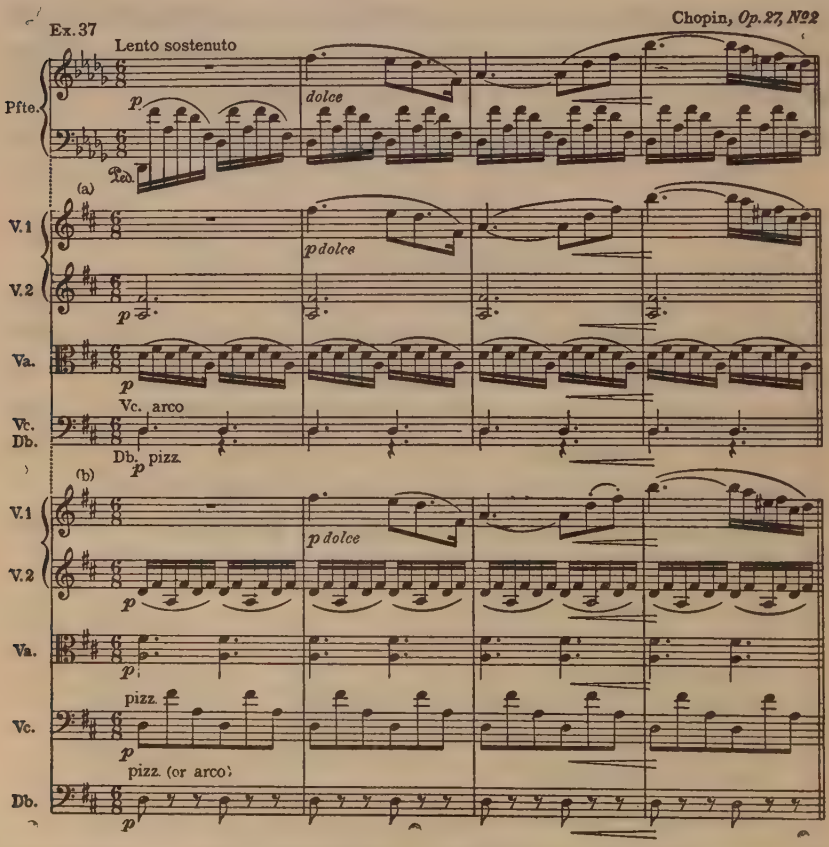
The following numbers, among many similar ones, are suitable:*

Au Alexis, Himmel (20 m.)
Turkish March, Mozart (24 m.)
Serenade, Haydn
Moment Musical, Schubert, *Op. 94, No. 3*
Prelude, Chopin, *Op. 28, No. 4*
Salut d'Amour, Elgar
Waltz, No. 15, Brahms, *Op. 39*

*These are all in the Mumil *Masterpieces of Piano Music* as well as in many other good collections. See music list on page 177.

LESSON 15

78. The harplike broken chords in the following Chopin *Nocturne*, and many pieces of this type, require faithful maintenance of the rhythm, and, in addition to this, the support of sus-



tained chords; because so slow a movement without the filler harmony would be very poor in the strings. With good violas, Ex. 37(a) would come out well. In (b) the rhythm is entrusted to the second violins, and the cellos and basses are both given *pizzicato* notes. This is a finer treatment than the preceding, the cellos coming through the supporting upper strings in a charming manner.

79. It should be observed that the original is transposed to D for the strings, a much better key for young orchestras. With skilled players, the key of D♭, with almost no open strings, would be beautiful; with beginners, simply bad.

Assignment 15

(a) Arrange the first twelve measures of Field's *Nocturne in B♭, No. 5,* for string orchestra, following in a general way the suggestions and models in this lesson. The key is good and should be kept. The rhythmic figure could be given to the violas for eight measures *arco,* then transferred to the cellos *pizzicato,* with a sparkling effect; or the second violins could be responsible for the rhythmic figure and with very slight changes this would not need to go below their range. This, while a rather short assignment, demands discriminating taste and care.

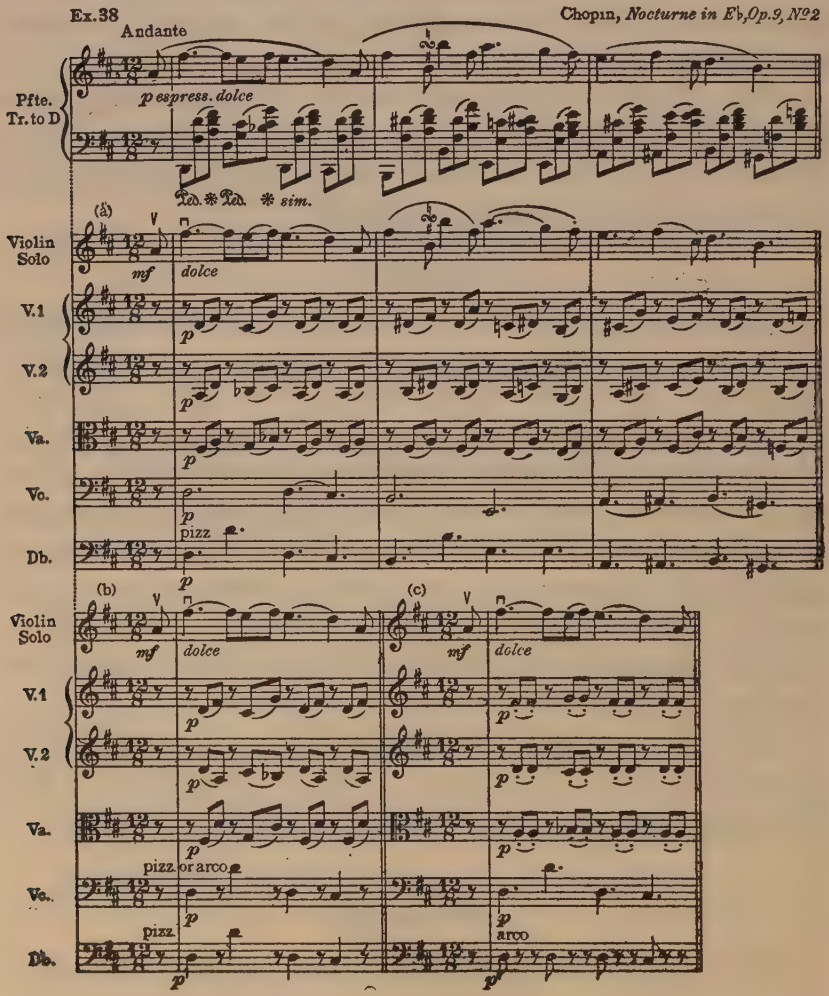
(b) In place of the above, if desired, arrange the first fifteen measures of Field's *Nocturne in E♭, No. 1.*

(c) Still another choice: the first thirteen measures of the Chopin *Nocturne, Op. 27, No. 2,* as begun in Ex. 37(a) or (b). The transposition to D, as shown, would be best.

LESSON 16

80. Another beautiful type of accompaniment is used in

Chopin's *Nocturne in E♭*. Here is neither the repeated chord of dance music, nor the harp-like figures in Ex. 37, but a sort of refined fusion of the two, deserving careful attention. Under Ex. 38 are three ways of arranging this number for violin solo and



string accompaniment. In all these the first violins now assist with the chord figures. In (a) the cello provides the sustained bass obtained in the original with the pedal, while the plucked double-bass notes point the rhythm. In (b) the direction of the chord-figure in the second violin is altered, involving slight changes in the viola. The bass here is more elastic but adequate. In (c) the accompaniment is faithful to the original harmony but reduced to the simplest terms, as for a very young orchestra. This is legitimate enough, even advisable under such conditions, and will sound passably well, but is not so fine as the other models.

81. To make comparison easier, we have transposed the original to D, the key recommended for this study. If desired the original key of E♭ could be used, the whole effect (on more closed strings) then becoming less frank but none the less beautiful.

Assignment 16

Arrange the first nine measures of the Chopin *Nocturne* as begun in Ex. 38, for violin solo and string accompaniment. Make a transposition of these measures to the key of D and copy them, measure for measure, just above your arrangement. Use (a), (b), or (c) as desired.

Other suitable numbers are:

Mendelssohn, *Venetian Gondellied, S. W. W. Nos. 12 and 13.*
Rubinstein, *Romance, Op. 44, No. 1*
John Field, *Nocturne in E♭, No. 8*
Pierné, *Serenade in A♭ (tr. to A)*

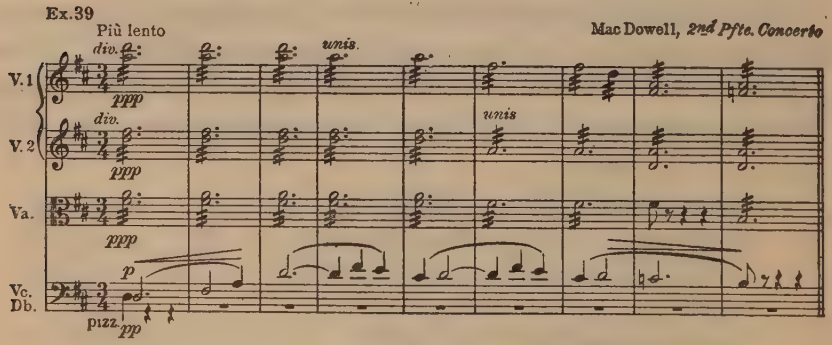
LESSON 17

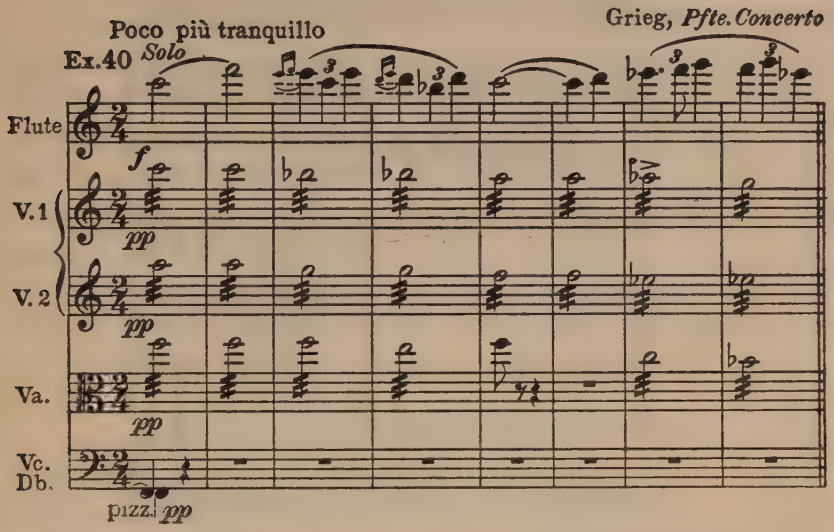
82. The string tremolo, a commonplace of today, was a novelty in 1600. With Monteverde, its probable inventor, it

never got beyond the stage of measured tremolo (cf. § 47). The marvelous possibilities in bowed and fingered tremolo were not discovered until later. Every lover of the orchestra will recall many passages of indescribable charm, such as the *Waldweben* music in *Siegfried*, and the *Venus* music in *Tannhäuser;* but the student of orchestration must learn how such passages look and how to get them on paper, he must hear, score in hand, and score tremolos to be played and critically listened to. The following quotations give a hint of the wide range of expression possible in this style of bowing.

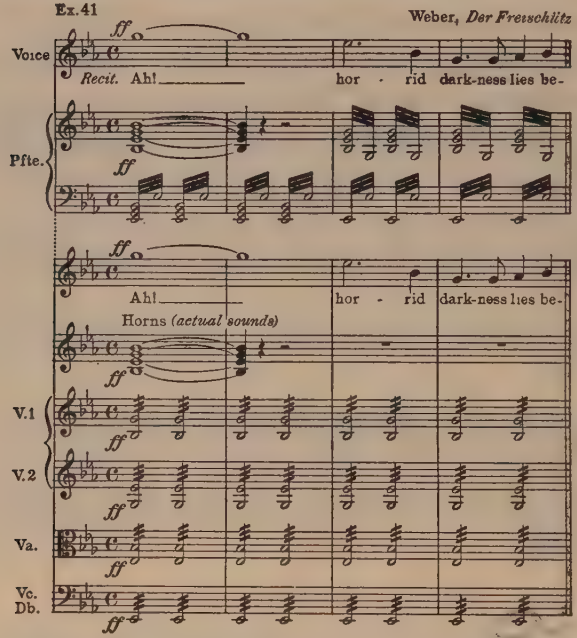
83. In Ex. 39 notice the well-spaced harmony, all above the cello melody. Bowed tremolo, triple piano. The one pizzicato bass note launches the whole passage which floats on the "imaginary" pedal.

Ex.39



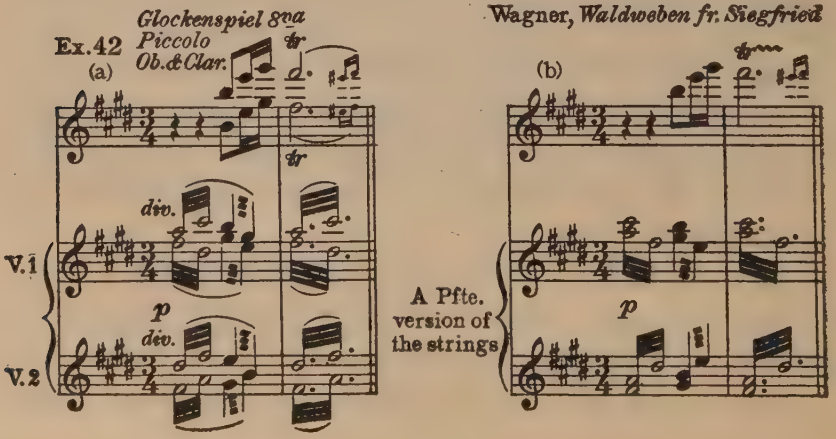
84. In Ex. 40 the very soft harmony, placed high, supports a still higher flute solo of exquisite beauty. Here the spirit of the music is comparable to sunshine, mountain valleys, purity, the ethereal rather than the earthly.

85. A sharp contrast to the preceding is found in Ex. 41 where, with this same bowed tremolo placed low and played fortissimo, horror, darkness, and extreme agitation are as graphically expressed in the strings as by the singer. Notice the low "g" in the piano score, omitted in the strings which are "horrible" enough without it. Four horns help to launch this passage. Special attention is called to the conventional pianoforte imitation of the tremolo. The one can never duplicate the effect of the other but the student must be able readily to translate one idiom into the other.

Ex.41 Weber, *Der Freischütz*



86. In Ex. 42 is shown the finger tremolo in divided violins. Compare minutely the string notation with the piano version at (b).

Ex.42



87. Every arranger wishes, sooner or later, to give a song an orchestral accompaniment. For a study of this kind, Schubert's *Am Meer* is an ideal number for the next assignment. If it is desired to put this on a real instead of an imaginary program, the first consideration is the choice of key for the singer concerned, since it is futile to prepare the score and parts in a range too high or too low for actual performance. Assuming that our arrangement is to be for a soprano voice, the models in Ex. 43 are set in the original key of C major. After the opening chords are assigned *divisi* to the lower strings, as in (a), the measures which follow (3 to 11) will be found as simple as a hymn-tune and can be written in a few minutes.

88. With the opening of the "storm" in measure 12, two types of tremolo are available—all bowed, as in (b) or partly bowed and partly fingered as in (c). In either case, one should write *divisi* and fill the harmony in the smoothest simplest fingering.

89. Although used to the point of being somewhat out of fashion at the present time, bowed tremolo would be better for young players in this accompaniment and one need not hesitate to use it.

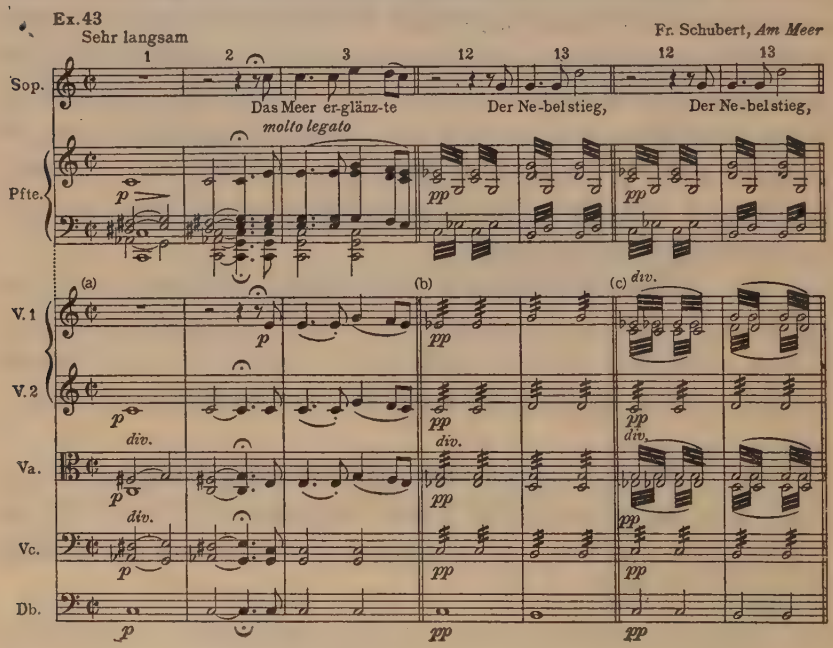
90. For practice in writing the considerably more difficult notation, the fingered tremolo is here recommended to the ambitious student. Combine it with bowed tremolo as begun in (c) and limit the intervals of the fingered tremolo to what can be reached on one string, not exceeding the diminished fifth (see § 50).

Assignment 17

Score Schubert's *Am Meer* for strings as begun in Ex. 43, and use tremolo from measure 12 on, as in (b), or in (c), as de-

sired. If preferred to score this for low voice, the key of A is best.

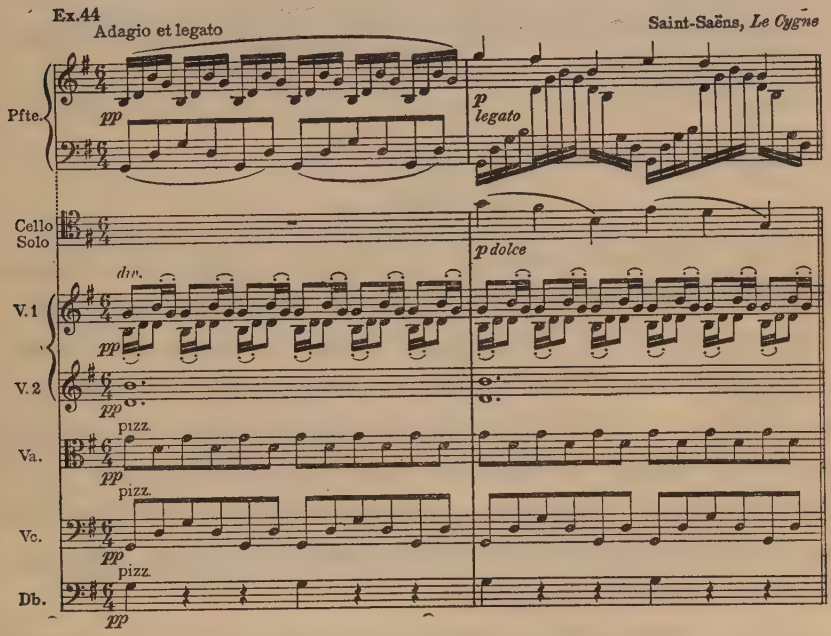
By carefully planning 1st and 2nd endings, repeating from the beginning of measure 3, you can save much copying and place the whole song on two (facing) pages of your MS book.



LESSON 18

91. A problem similar to that in the Chopin *Nocturne* (see Ex. 37) is presented in *The Swan* by Saint-Saëns. Here is a flowing melody supported by a filigree of chords. To arrange this number for cello solo with string accompaniment, one must retain the broken chords in some instruments while providing sustained harmony in others. In Ex. 44, sustaining chords in the

second violins nourish the harmony. The cellos and violas in pizzicato eighth-notes, and the first violins in sixteenths, arco, supply the rhythm. The double-bass pizzicato, as shown, is adequate; longer notes would make the music too heavy—it must be airy, must float. In this key, the cello solo lies in the instrument's finest "singing" range.



Assignment 18

Score the first nine measures of *The Swan*, Saint-Saëns, for cello solo with string accompaniment, copying these two measures and adding the others in this style. Work from a good piano score. It would not be difficult to arrange this entire num-

ber but in nine measures you have the kernel of the problem. The tenor clef is best for most of this solo.

Other fine numbers suitable to this treatment:

Mendelssohn, *Songs without Words, No. 19, Op. 53.* Orig. in A♭; transpose to A. Double-bass, *pizz.*, cello, *arco,* rhythm carried between viola and violin 1 or 2

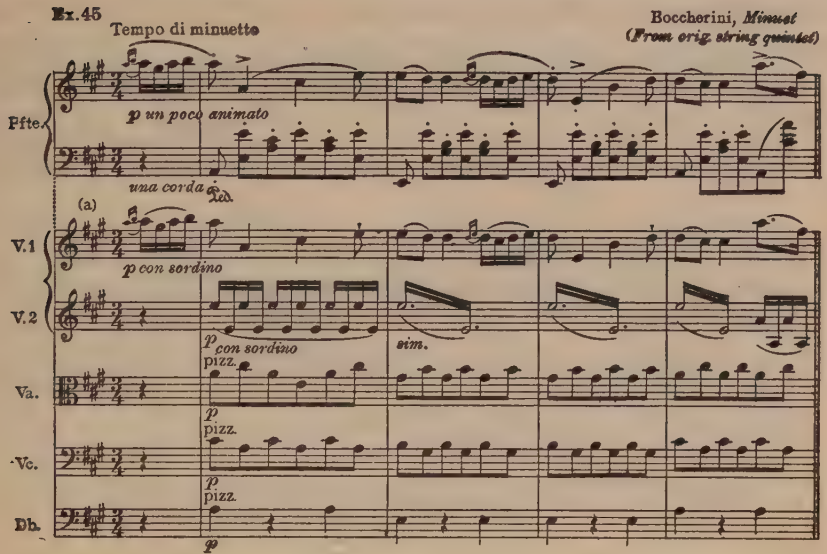
Schumann, *Schlummerlied, Op. 124, No. 16*

Chopin, *Prelude, Op. 28, No. 6*

Gabriel Fauré, *Romance sans Paroles, Op. 17, No. 3;* transpose from A♭ to A

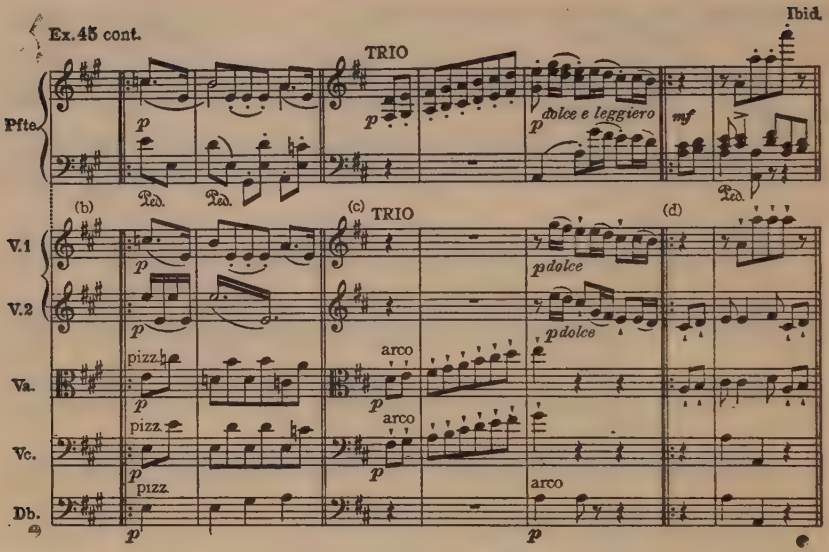
LESSON 19

92. The next quotation, Ex. 45, shows significant portions of the well known *Minuet* by Boccherini. This charming number was originally written as a part of one of the composer's many string quintets, for first and second violins, viola, and first and second cellos. In the following examples, the upper four strings are shown exactly as Boccherini wrote them and are well worth detailed study. The piano score is therefore not an original but an arrangement, and the student's problem is the less usual one of working back to an original.

93. Among other things, notice how, in (a), the second violins are given a kind of finger tremolo on the octave "e"—a figure whose existence is not even hinted at in the piano score; also, how the violins are asked to use the mutes, but the other strings are *pizzicato* with no mutes. The bowing is also Boccherini's and is distinctly different from the piano version

94. In (b) the opening of the second strain affords a clue to all that is needed to complete the *Minuet*.

95. In (c) the opening of the *Trio* shows interesting contrasts, in nearly every item, from what has preceded. Change to *arco*, crisp detached notes in the lower strings answered by short slurred clusters in the upper.

96. In (d) observe how the composer repeats the high "a" in the first violin instead of making the second leap as in the piano score.

97. As here shown, these parts are true to the original edition of Janet et Cotelle, Editeurs, Paris. A thorough understanding of this piece as a whole will give the student an insight into some of the fine ways in which the strings can be handled to obtain contrapuntal charm and rhythmic variety. It is well worth intensive study.

Assignment 19

Score the Boccherini *Minuet* and *Trio*, using the original material given in Ex. 45 and working the rest from the piano score.

Note: To do this work with attention to every detail of bowing, phrasing and expression marks, will require from four to six hours and, if desired, the *Minuet* might well be considered a lesson, and the *Trio* another.

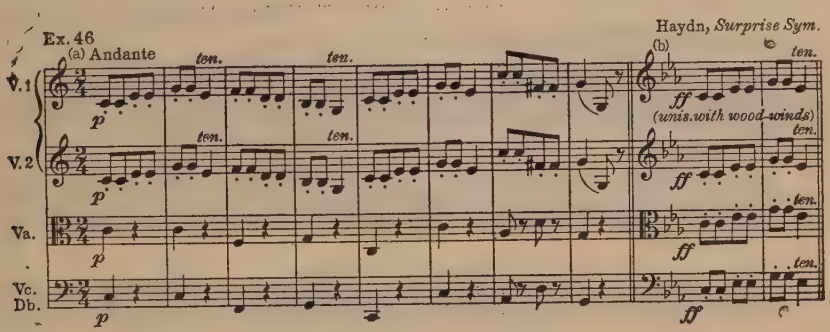
LESSON 20

98. Before taking temporary leave of the strings, attention is called to a number of matters which every orchestrator should consider—some more or less new, others in the nature of a résumé of the preceding lessons. First, observe a variety of ways to give especial prominence to the melody, and what the composer does with his remaining instruments.

99. In Ex. 46(a), with the melody doubled in unison by

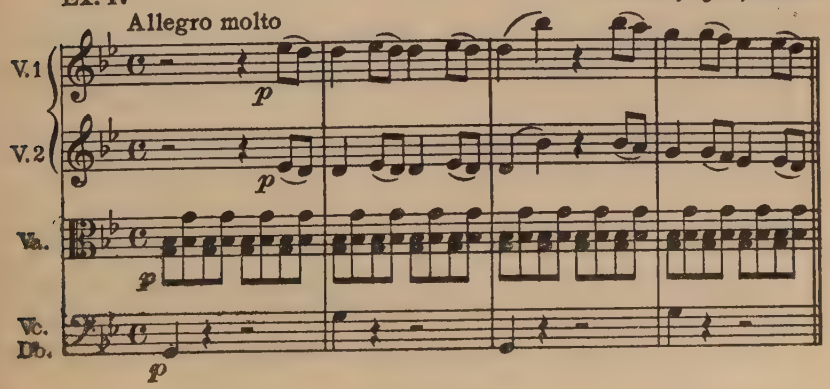
all the violins, Hadyn lets the viola simply double the cello in its upper octave, a very common procedure with pre-Haydn composers and frequent with Haydn and even Mozart. In (b) all his strings and all his wood-winds unite to announce the melody *ff* in the minor key.

Ex. 46 Haydn, *Surprise Sym.*



100. In Ex. 47, with the melody doubled in the octave by first and second violins, Mozart requires the viola to double-stop chords for middle harmony, depending on cellos and double-basses for the bass. Notice how the violas spread the chord to allow the second violins "elbow room."

Ex. 47 Mozart, *Sym., G min.*

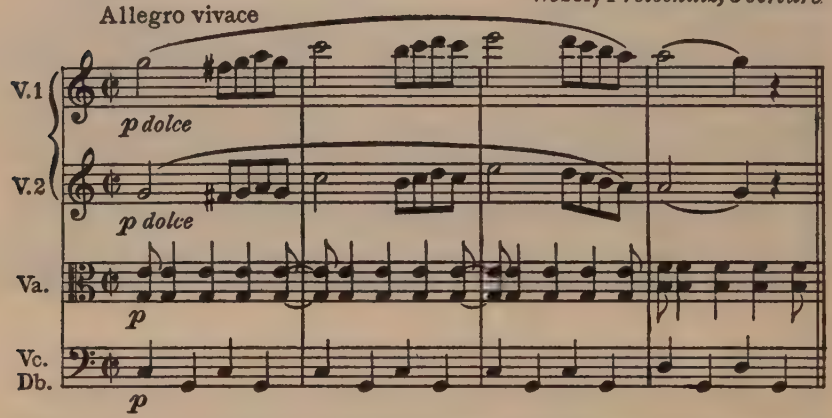


101. In Ex. 48, with the melody doubled, as in the preceding example, Weber gives the violas double-stop intervals in syncopated rhythm. This is but one of several settings of the same melody in this overture, no two are alike, and all are worth careful study.

Ex. 48

Allegro vivace

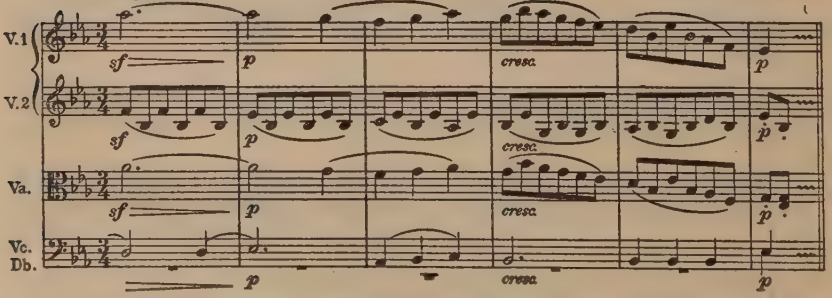
Weber, *Freischütz, Overture*



102. In Ex. 49, the violas rise above the second violins and play the melody in octaves with the firsts. Cellos alone play the bass, second violins play filler harmony.

Ex. 49

Allegro con brio

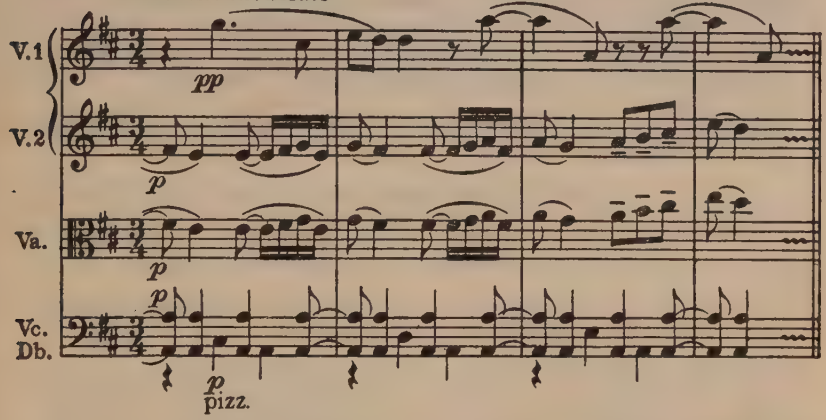
Beethoven, *Eroica Sym.*

103. In the next example, the violas play the melody in

unison with the second violins, in an inner part—in this register indescribably rich and appealing. The first violins, though high, are *pp*. Having used his violas for melody, Beethoven double-stops his cellos to fill the space. The double-bass appears to cross but does not, since it sounds the octave lower. Notice the stems on this staff.

Ex. 50

Andante moderato

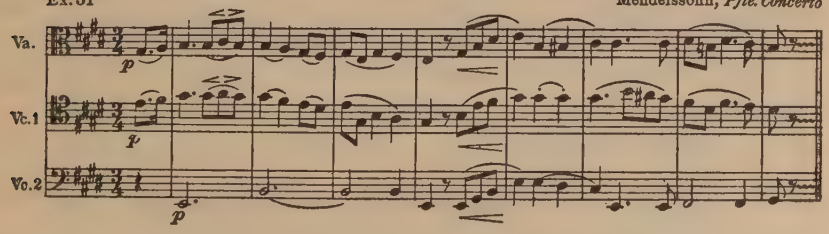
Beethoven, *Ninth Sym., Adagio*



104. In Ex. 51, the score is reduced to cellos 1 and 2, and violas, to which is added the double-bass a moment later. This exquisite passage recalls the opening of the *Nocturne* in the same composer's *Midsummer Night's Dream* music. Notice how the first cello sings above the viola.

Ex. 51

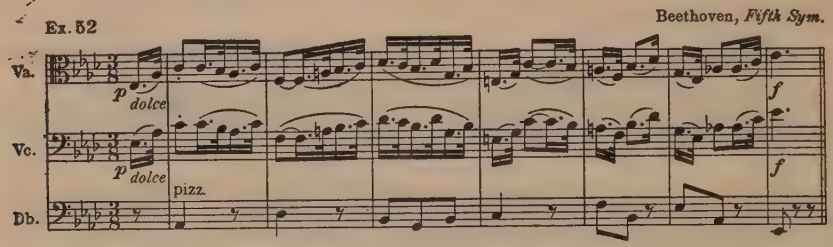
Mendelssohn, *Pfte. Concerto*



105. In Ex. 52, violas unite with the cellos to give the melody in unison over a pizzicato bass. Notice the wide space between the double-bass (sounding an octave below the written notes) and the upper part. The upper partials of these low bass notes are sufficient to make this wide space negligible.

Ex. 52

Beethoven, *Fifth Sym.*

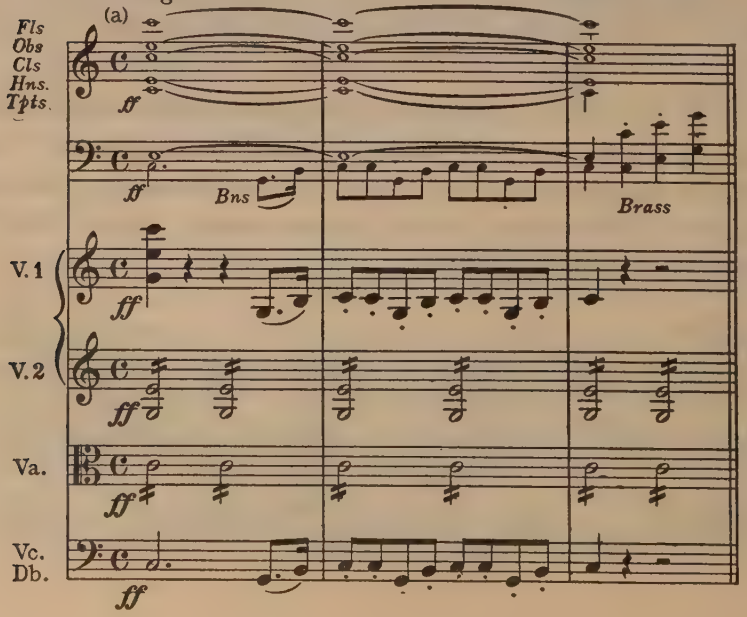


106. In Ex. 53(a), Beethoven takes a very unusual method of announcing his first theme; in (b) notice the theme in every

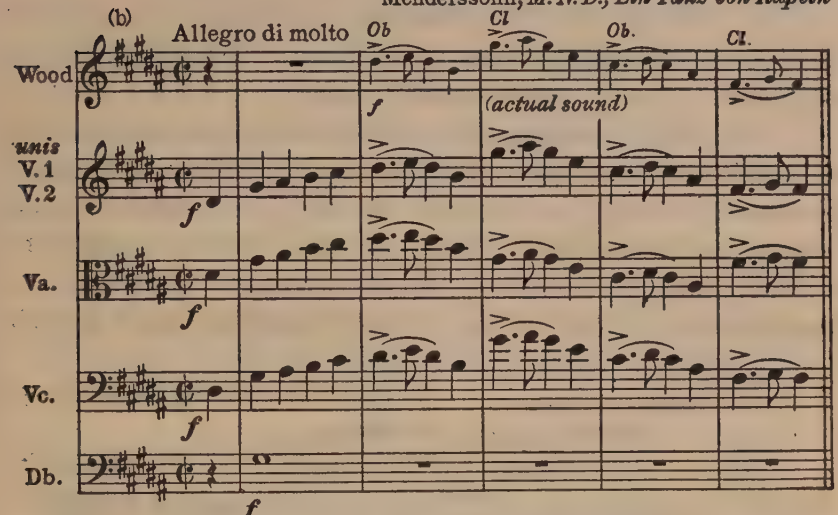
Ex. 53

Allegro con brio

Beethoven, *Sym. I*



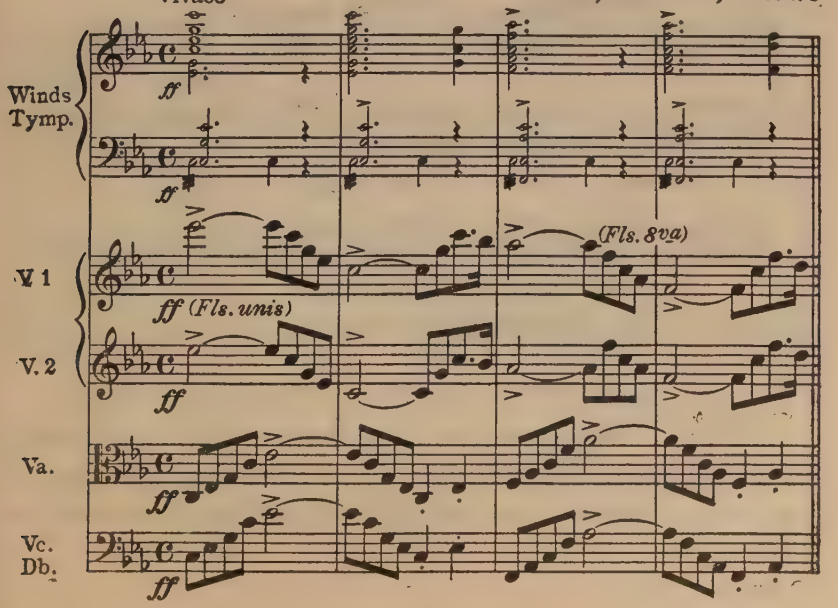
Mendelssohn, *M. N. D., Ein Tanz von Rüpeln*



part but the double-basses, no sustained chords, while even the wood-wind catches up the motive in dialogue.

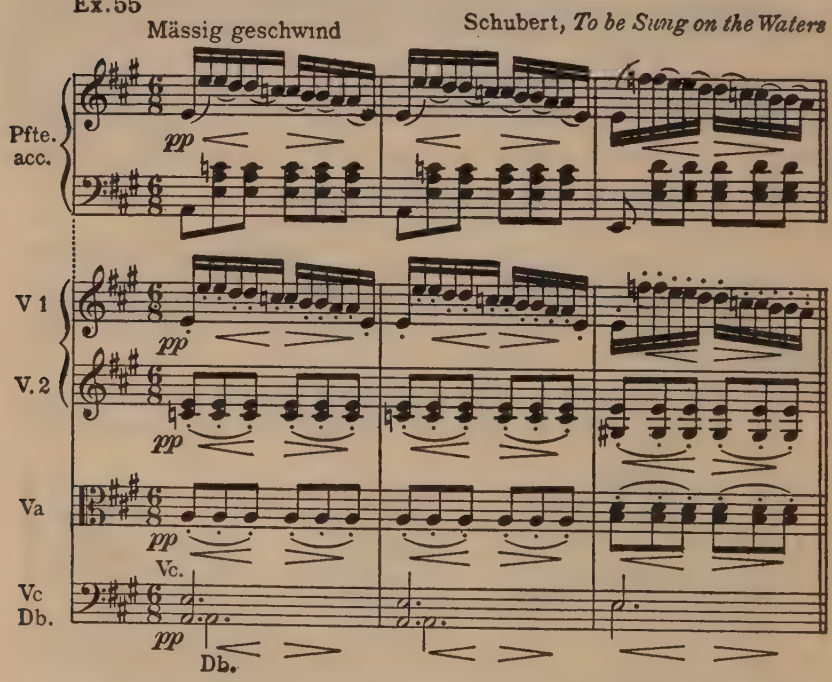
Ex. 54

Vivace

Weber, *Freischutz, Overture*

107. In Ex. 54, Weber marshals his strings in two grand divisions, or companies, which enter upon a pompous dialogue supported by solidly massed wind harmony.

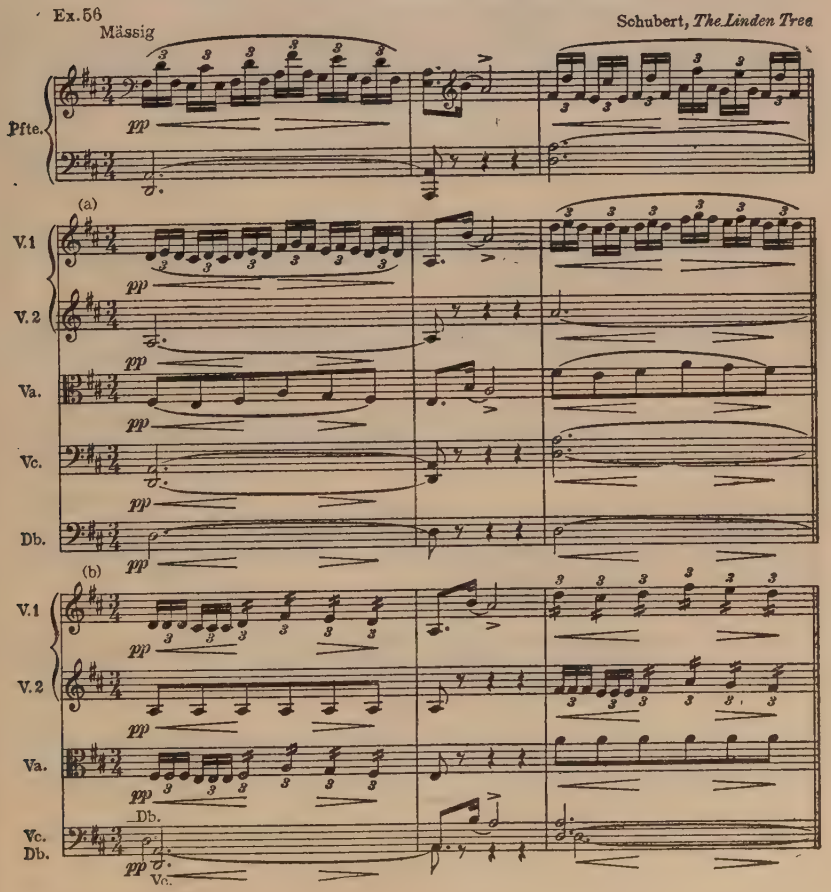
108. Since arranging the accompaniment of a song from the piano score is so frequently the student's problem, we will add two models showing how to treat the first few measures of two more songs by Schubert. In Ex. 55, the rhythm is confided to the first violins, the harmony to the lower strings. This figure in the sixteenth-note rhythm lies well in the hand and is not altered.

Ex. 55

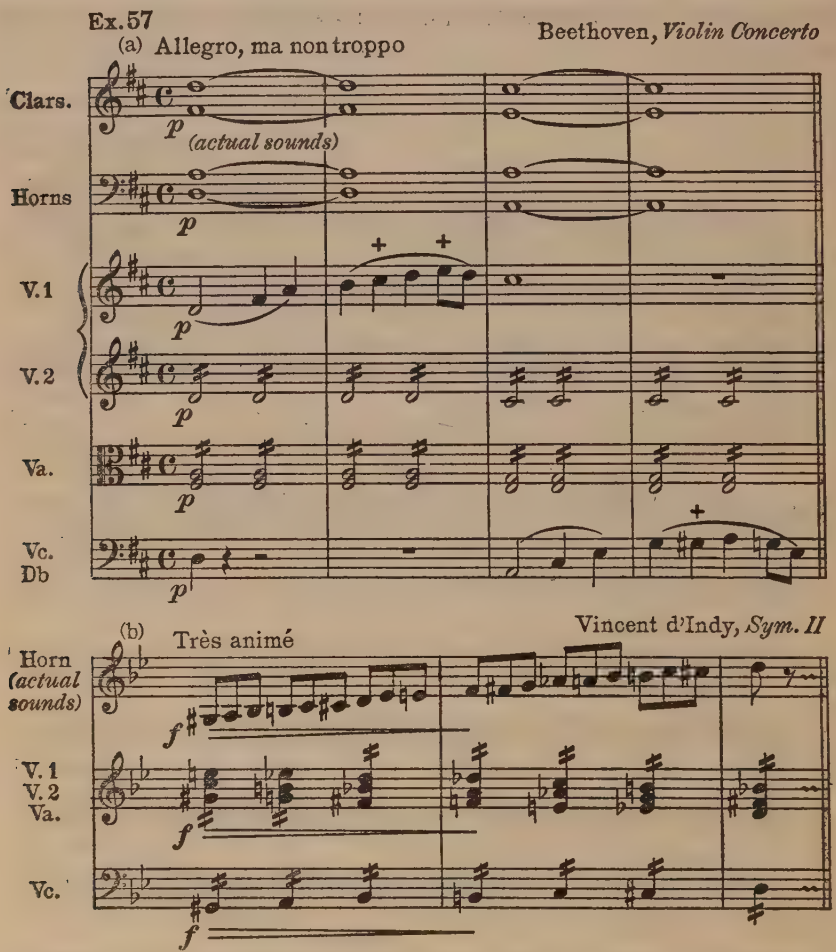


109. Ex. 56 presents two good ways to score the opening measures of Schubert's *Linden Tree*. The restless figure in this piano accompaniment is not simple for the strings and should be

modified. In (a) the rhythm is maintained and a substitute figure, better adapted to the strings, is invented as shown. In (b) the broken sixths in the original are carried in triplets of double sixths, an arrangement inferior to (a) but perfectly adapted to young players. Observe that, in both models, filler notes are used where needed.

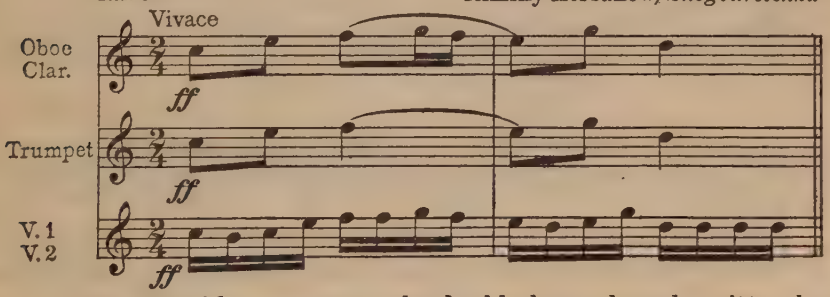


110. Ex. 57 shows passing tones in the melodic line which clash with the supporting harmony. These are not bad. The melody "carves" its way through the harmonic texture without

Ex. 57

offense to the ear, though such a passage may *look* bad to a student fresh from studies in pure part-writing. The greater the contrast in timbre, the more freely such crossings, or clashes, may be written. In (a), see cello and viola, measure 4; violin and clarinet, measure 2: and in (b), ascending horn against all the descending upper strings.

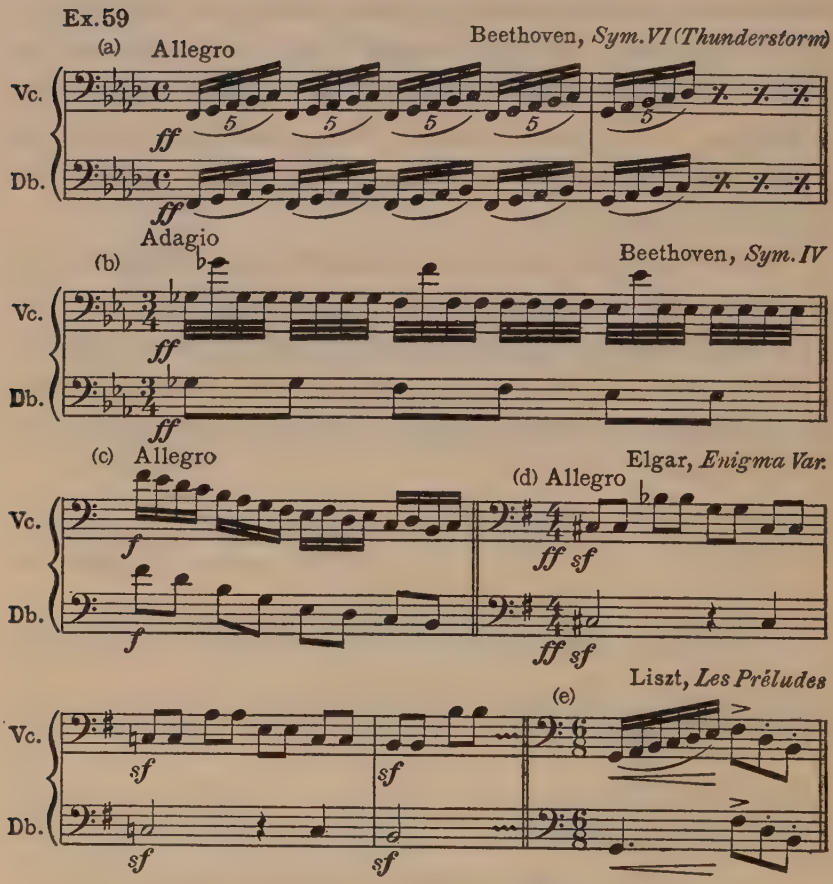
111. Ex. 58 presents a melody *in three different forms* progressing simultaneously. A melody thus treated, frequently contains numerous clashes, or dissonances, between the instruments concerned; but one writes such a passage freely, especially where the modification adapts the melody to the genius of each particular instrument.

Ex. 58 Rimsky-Korsakow, *Snegourotchka*



112. Rapid passages on the double-bass, though written by all the great composers, rarely come out distinctly even in the hands of the best players. On the E and A strings it is easy to make a passage sound like thunder (*the Storm*, Beethoven's *Pastoral*), but for clarity, rapid rhythms and rapid figures must be simplified for low heavy instruments, Ex. 59.

Ex. 59



Contrast in the Scoring for Strings

113. Contrast in the strings is obtainable in so many ways that the following list should be considered suggestive rather than complete.

1. Violins alone, the seconds accompanying a melody in the firsts.
2. Violins and violas only, in character of trio for women's voices.
3. Violas, cellos and basses only, in character of men's chorus.

4. The violins alone *divisi,* very high, *tremolo* bowed or fingered.
5. All the low strings *tremolo,* no violins.
6. *Pizzicato* in all the strings, or in part of them.
7. Use of *sordini* in all or part of the strings.
8. Various types of bowing, e.g., *détaché* for one passage followed by a sharply contrasted type in the next.
9. Solid passages in unison (or octave) on the lowest string of each instrument.
10. Use of sharply contrasted *ff* and *pp* in quick succession, or through *crescendos* or *decrescendos.*

114. Finally, to arrange a number of pieces of music for strings, according to the explicit directions given in the preceding lessons, is, indeed, foundation work of first rate importance; but for the student who aspires to independence of judgment and skill in orchestrating music of his own choice, much more is needed. It is now necessary to consider a number of matters partly new, and partly by way of stressing general principles already laid down.

115. In scoring music for the orchestra, one must constantly study two sorts of values: (1) Relation of tones, (2) Relation of color (quality or timbre). And these values must be considered from three important standpoints: (a) Melodic, (b) Harmonic, (c) Rhythmic.

(a) *The Melodic Line*

The melody must be of a quality (timbre) that assures it due prominence. The weaker the melodic line, the farther it must be from the accompaniment—sometimes more than a sixth.

Passages with independent melodies need air; they are often better spaced rather widely.

Where the texture of the melodic line is contrasted with its supporting harmony, passing-tones which clash with the latter are negligible to a considerable degree (Ex. 57).

A melodic figure and its simplified form may proceed together, the resulting dissonances are of no moment (Ex. 58).

If the upper strings are all *divisi* and the cellos are not, the latter will be rather heavy—a matter to consider.

The deep rich quality of the G string on the violin must not be forgotten—it frequently figures in an entire melody (marked *sul G*).

For strings, many playing in unison are finer than one alone.

Violin and viola doubled in unison *high* is intense, *low*, rich, and appealing.

Violin and cello in unison, poor *high*, good *low*. The violin absorbs the cello.

The second violin lacks personality.

The viola *low* is eminently expressive.

Viola and cello in unison, better than in the octave.

Double-bass in unison with cello, grave, rich.

Combinations of timbre in the melodic line, involving winds will be discussed in § 174 and 181.

(b) *Harmonic Relations*

Fullness depends on the writing of the harmony, that is to say, on the arrangement of the chord-members with regard to their spacing, and the proportion of strength of timbre of each instrument.

The typical disposition of a chord is that of the harmonic series (cf. § 28), i.e., "Nature's Chord." Low, the parts must not crowd each other or the harmony will be thick and muddy, while, if the higher parts are too greatly separated, the effect will be thin and ineffective.

No one part of a chord must stand out too much—due proportion of root, 3rd, 5th, 7th, must be considered.

The note on which a new instrument enters must not be one that is bad when unduly doubled, e.g., the 7th in a chord.

It should be clear to the arranger whether the passage he is writing is three-, or four-part; the addition of a part should be made with the entry of a new idea or new theme.

Harmony is now usually four-part—all the rest is filler or duplication.

In pre-Haydn times, the strings were frequently reduced to two-part harmony, the composer depending on the organ or clavichord for fulness. Haydn and Gluck frequently did the same. Such writing is not a model for the modern mode.

Spacing is often determined by the resolution of a chord, a matter of importance; but short string chords (which usually require the support of winds) must be spaced with especial regard to their resonance and ease of performance; here the progression of the parts is secondary.

If your string harmony is incomplete, the winds will not complete it. Possible exceptions: horn for low notes of the viola, bassoon to fill out string harmony.

From the foregoing, we deduce a good general rule: Each body, or group, when playing harmony, must be complete in itself, but we may add to this: *any melody, already present in the strings, may be re-inforced by a wind instrument at pleasure.*

Finally, there must be harmonic affinity in any group of instruments on which you rely for the harmonic structure. Details on this will be found under wind instruments.

(c) *Rhythmic Elements*

Quick rhythms must be simplified as the material reaches the lower ranges. This is especially true with low passages in a heavy instrument, Ex. 59.

The quicker the rhythm, the more care is necessary to avoid long leaps, except to an open string, which is always easy.

The quicker the rhythm, especially when broken chords are available, the less need of sustaining (filler) harmony.

Chromatic scale passages are more difficult than diatonic ones. Broken chords (arpeggio forms) are easier as triads than when containing diminished sevenths. But all these are mere hints; the arranger who *will* score difficult music should be intimately acquainted with the instruments concerned.

Cellos are better *divisi* than double-stopped. They are especially fine where there are enough to take the place of the horns. If horns are added to them, a double-bass is needed.

Cellos are very satisfactory on the real bass. The double bass, *pizzicato*, adds to them without robbing them of their independence.

The autonomy of the cellos from the double-bass was a grand conquest of the 19th century; not till then did they come to the aid of the middle parts, or play an independent, or a counter-melody.

Double-basses rarely divide.

The extremes of dynamic range should be *ff* and *pp*. They were so to the end of the 18th century.

sfz is simply an accent mark and can be applied in a *pp* passage; but *fp* means forte followed immediately by piano.

All entries of an instrument must be indicated *p*, *f*, *ff*, etc.

The ⌒ must be placed carefully and show clearly what is to follow.

Assignment 20

There are several valuable and interesting things to do at

this point. Whether one or all of the options that follow should be done before proceeding to the wood-winds, will depend upon the time that can be given to the course.

(a) Reduce Exs. 47 to 51, inclusive, to piano score for two hands. Scarcely anything you can do will more quickly challenge your discrimination, or ripen your musical judgment, than work of this kind. You must retain the essential, discard unplayable duplication, above all, make your score practical.

(b) Arrange the first 29 measures of Schubert's *To be sung on the Waters,* for voice with string accompaniment; see the opening bars in Ex. 55. The original is in A♭; A is easier for the strings. There is a low-voice edition in F. As to key, read again § 87.

If you select this problem, you could give the solo, later, to clarinet, cornet, or other wind instrument.

(c) Arrange the first 24 measures of Schubert's *The Linden Tree,* using the opening measures as in Ex. 56 (a) or (b).

Other numbers suitable for string orchestra are:

Beethoven, celebrated *Minuet in G*
Mendelssohn, *S. W. W., Nos. 2, 4, 9, 12, 14, 48*
P. Scharwenka, *Moment Musical, A maj.*
Gluck, *Caprice* from *Alceste*
Humperdinck, *Prayer* from *Hänsel and Gretel* (Mumil, p. 522)
A. Ilyinsky, *Cradle Song, Op. 13.* Trans. fr. G♭ to G
Schubert, *Moment Musical, Op. 94, No. 3*

The above pieces and many others of similar scope lend themselves to arrangement for small orchestra, or to strings with one or two solo winds. The best practice, however, at this time is to learn to make the most of strings alone—a procedure too often neglected by the impatient learner, who wishes to use all the colors of the full orchestra before he has mastered his drawing.

PROJECT 3

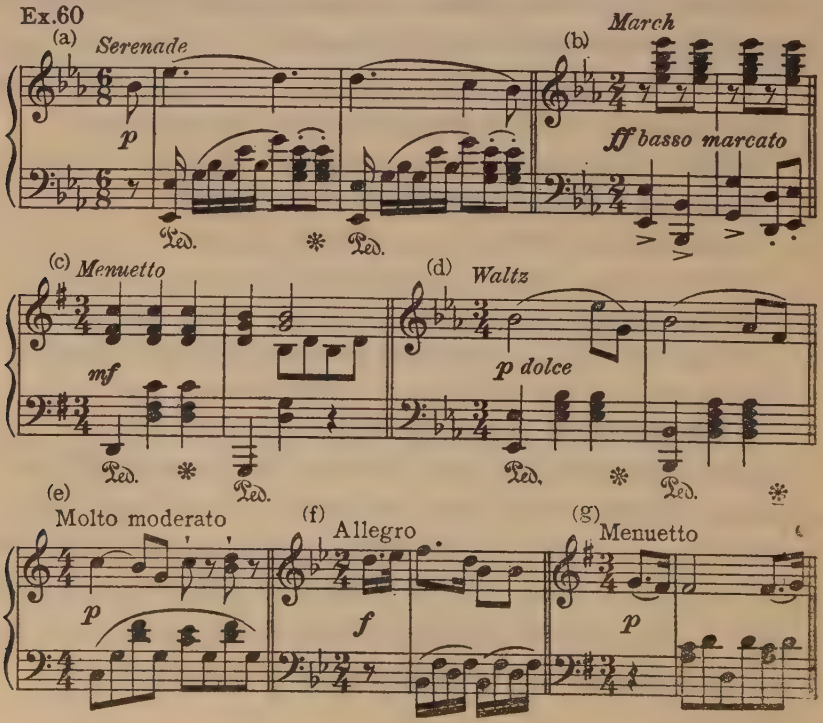
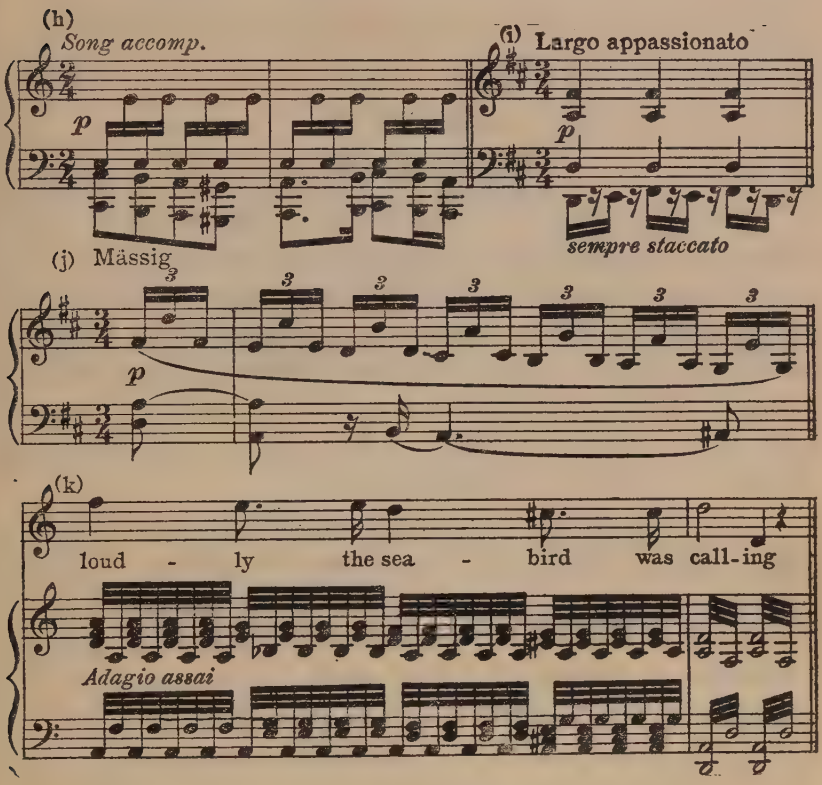
(To follow Lessons 15 to 20)

Make your own choice of a fine number for string orchestra, something giving an opportunity for contrast and variety in treatment, and make as beautiful a setting for strings as your experience permits.

Test-Problems in Scoring for the Strings

Note: In the following very short test-problems the student is given an excellent opportunity to try out the knowledge he has gained in the preceding twenty lessons on the strings. Here is nothing that can be considered new to him, but to score two or three dissimilar problems and finish them in a musicianly way in 30 or 40 minutes will put him on his mettle. If treated as examination questions, selection by the teacher from these, or similar types, should embrace those which offer the most useful practice.

Ex.60



(h)
Song accomp.
p
(i) Largo appassionato
p
sempre staccato
(j) Mässig
p
(k)
loud - ly the sea - bird was call-ing
Adagio assai

LESSON 21

The Wood-Winds

116. The *Wood-winds* rank next to the strings in importance. While sufficiently homogeneous to provide in themselves a satisfactory choir, their individual qualities give them primarily the character of soloists entering now here, now there, singly, in pairs, or in various groups, to answer the strings, or to converse among themselves, with or without an accompaniment. So great is this peculiarly personal quality, that a solo entry of any wind instrument makes an immediate appeal.

117. Like human voices, the wood-winds need breathing places. They require more rests than the strings. Furthermore, they have their "best notes" and love to use them, and other notes too high or too low to risk in solo passages. Each of these instruments has a register which admits of its most expressive playing—the one in which it is best qualified to use *crescendo*, *diminuendo*, *forte*, *piano*, etc. This register is called by Rimsky-Korsakow "the scope of greatest expression." It is, fortunately, the easy middle range of the principal wood-winds that is thus described, while, at either extreme, these instruments have some notes whose difficulty or quality, excludes their use except in a *tutti*, or for special purposes, as will be seen later (see Ex. 61).

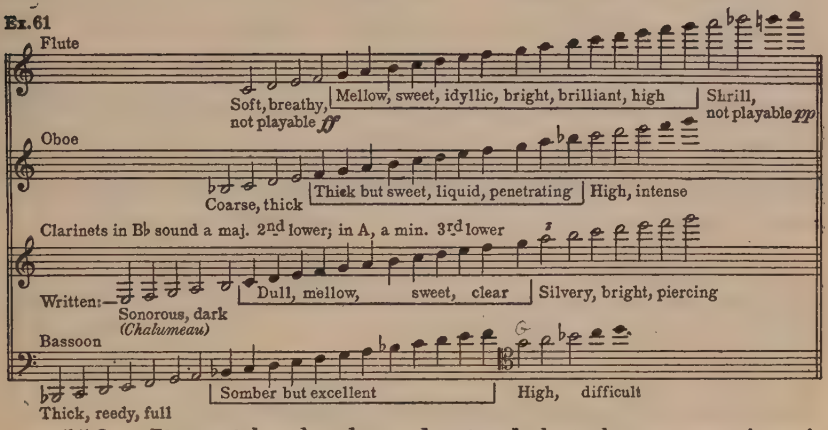
Orchestral Ranges of the Four Principal Wood-Winds

(a) Easy school orchestra range: all the quarter-notes with stems.
(b) Practical range for general orchestra work: all notes with stems.
(c) Solo resources, better avoided: the black notes without stems.

These instruments have all the intervening chromatic tones.

NOTE: No sudden change from one quality to the next; quality names are merely hints.

Ex. 61



118. It must be clearly understood that the ranges given in the above table (Ex. 61) are conservative as concerns what is termed "easy school range." For, *orchestral writing should be easy to play* if it is to stand any chance of being well performed by an amateur group. An inexperienced arranger who writes for imaginary players, giving them difficult passages which require the extreme limit of range and solo technic, invites failure.

119. The student is cautioned not to place undue emphasis on the attempt to describe tone quality (timbre) as given in this table; nor, on the other hand, to disregard it. The scale of the flute, for example, does run the gamut of qualities somewhat imperfectly described by the adjectives used; be it understood, however, that *no one note marks the boundary* between timbres—one might as well attempt to fix the limit of the rainbow's tints.

THE FLUTE

120. Music for the flute is written in the G clef, and sounds

as written. Although much flute music lies high, the player is accustomed to leger lines and prefers them to a too frequent resort to *8va* over the notes. In writing for two flutes it is customary to give a piccolo part (if required) to the second flute. This principle holds for all winds in pairs—the first player is not asked to change his instrument. In threes, the third player must make the change. If possible, he should always be given a little time to warm his instrument which, when cold, is almost certain to begin out of tune.

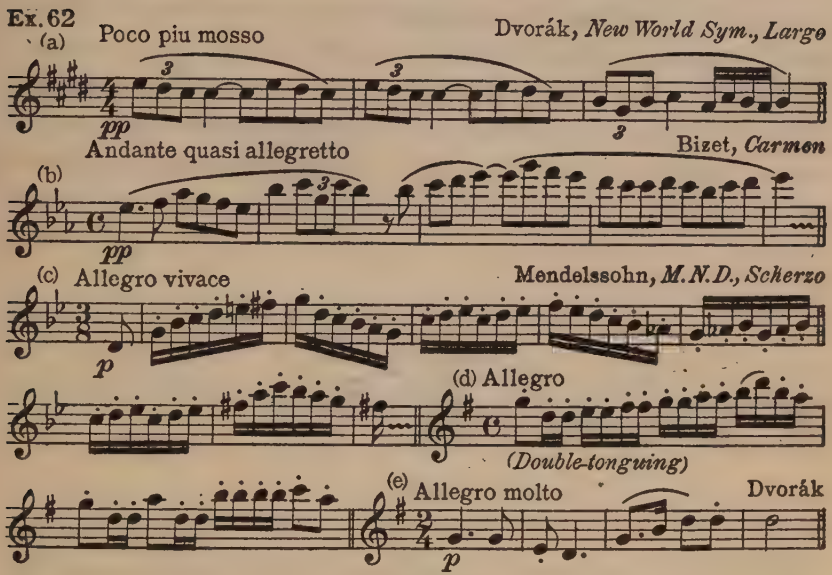
121. Within its three-octave compass, the flute can do almost any kind of passage possible to the violins. It is the most agile of all the wind instruments; in scale passages, arpeggios, trills (except its lowest and highest three tones), repeated notes (through double- and triple-tonguing), it is quite in its element. In cantabile passages it is eminently expressive, but is not at its best in long sustained notes.

122. In the orchestra, the flute in the upper ranges of the harmonic mass is the natural counterpart of the double-bass in the lower strings. Its grace and ornamental charm give to the upper harmony an atmosphere of azure light. Its ability to express melancholy or mystery (when played low in minor keys) has been recognized by composers of dramatic music (*Freischütz*, p. 132, full sc. Ed. Peters) but the great symphonists of classic fame did not employ these low breathy notes.

123. At this point, the student will learn more from a careful reading of the flutes in Mozart, Beethoven, Weber, and Mendelssohn, than from reading about them in any book; but, most of all, he must hear significant passages played. In Ex. 62 are given types of notable flute solos. To these might be added scores of others equally interesting. Others should be selected by

the student and made a part of his background for future reference in practical arranging.

Flute



The Oboe

124. Music for the oboe is written in the G clef, and sounds as written. In writing for two oboes it is customary to give an English-horn part (if required) to the second player, and at least a dozen or more measures in moderate tempo should be allowed to make the change of instruments.

125. The oboe is a double-reed instrument. It has not the flexibility of the flute, but within reasonable speeds it can do almost anything that the flute does. So little breath is required that the oboist is practically unable to expel the air from his lungs except between phrases. It is therefore very taxing to play long

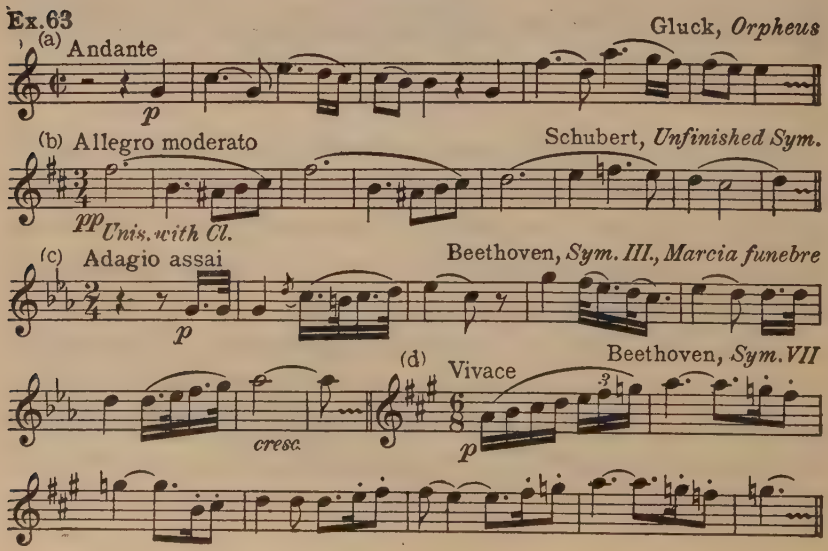
unbroken passages. The arranger should know what kinds of melody are best suited to the instrument.

126. The tone of the oboe is penetrating, eminently expressive, appealing, sweet, and simple. It is equally suited to rural gaiety on the one hand, or poignant sorrow on the other. Whatever its mood, the timbre of the oboe, like a deep red, invariably stands out on the orchestral palette. Its quality will modify that of any instrument with which it is doubled, the flute, for example, will sweeten it; but blend it will not, and this unique characteristic must always be reckoned with. In certain passages the oboe's "red line" may be too intense, in others, a precious and almost indispensable resource.

127. Typical melodies perfectly adapted to the oboe are given in Ex. 63. Who, having heard these, can ever forget the individual appeal of each? Notice that these all lie in the finest part of the instrument's compass.

Oboe

Ex. 63



The Clarinet

128. Music for the clarinet is written in the G clef and sounds as written *only when played on a C clarinet*—the only one that is non-transposing. This instrument (in C) is frequently indicated in older scores but is now practically obsolete; it has proven less mellow and resonant than those in B♭ and A which are now standard in all modern scores, the B♭ having the preference where a choice is possible.

Transposing Instruments

129. For purposes of illustration, suppose that, at the end of a long vacation, you return to find that your piano has gone below pitch; so much so that when you strike middle C you get B♭, a whole-step lower. You play a song written in C, it sounds as if written in B♭. Your piano has become a transposing instrument. *It is in B♭.* Because of this, if you really want your song to sound in C, you must play it a whole-step higher than that—that is the key of D. To avoid the difficulty of reading from a copy in C and transposing it up a whole-step, as you go, you will prefer a copy printed in D which can be played as written and your piano (now in B♭) will do the transposing itself.

130. In a similar manner, we may consider the behavior of all transposing instruments; with this difference — they did not merely drop in pitch over summer, but are made that way because of the resulting superior resonance. Thus a clarinet in C is non-transposing, but not of maximum resonance or quality; one made in every way just like it, except that it is a little longer and therefore lower in pitch (say in B♭), meets all requirements. Result: C clarinet discarded, B♭ clarinet used. This is all in the interest of the player and the music—items of first importance. Alas for the arranger! He must remember what this B♭ clarinet does and

write his part a whole-step higher than it will sound. The A clarinet is a little longer than the B♭, its written C will sound A, the minor third lower. To get C therefore on the A clarinet, one must write E♭, the minor third above it; and for a piece to sound in C, one must write it in E♭. Another result: the score becomes a "fearsome" thing to a beginner in arranging, or in score reading—one part with one signature, another with a different one; but the difficulty is not insurmountable. Remember the behavior of the low pitch piano.

131. Now to return to the clarinet. It is a single-reed instrument, the most useful wood-wind for range, quality, ease of execution in any speed and in any variety of force. Its peculiar quality is due to the absence of the even numbered upper partials (harmonics).

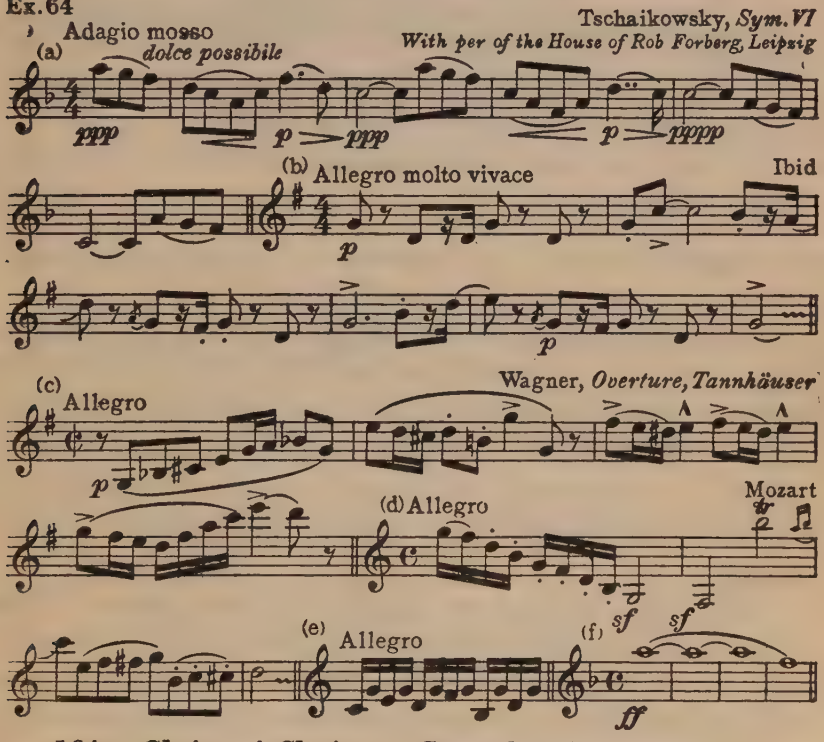
132. The clarinets are the soul of the wood-wind group at the present day. Their mellow tone and great flexibility place them midway between the high and low winds, with any or all of which they blend. Their lowest register was not fully appreciated until Weber's day. By the use of this low (chalumeau) register, Weber gave the orchestra an instrument embracing the entire range of the feminine voice and exceeding it in both its upper and lower compass. Melody, arpeggio passages, sustaining chords, filigree ornamentation, are all easily within its possibilities, while its resources are still not exhausted by the modern composer.

133. In its lower range, the clarinet represents a deep, somewhat hollow, alto voice; in the middle to medium upper range, a splendid soprano, rich, full, and brilliant. In its extreme upper range it becomes piercing. It embraces the compass of nearly all of the violin and viola combined. Trills and tremolos are possible with so little exception on the modern clarinet

that, aside from those requiring g♯, a, or b♭ *within* the treble staff, one need not hesitate to use them, as needed, in any ordinary orchestral work. Ex. 64 presents a few types of fine clarinet passages.

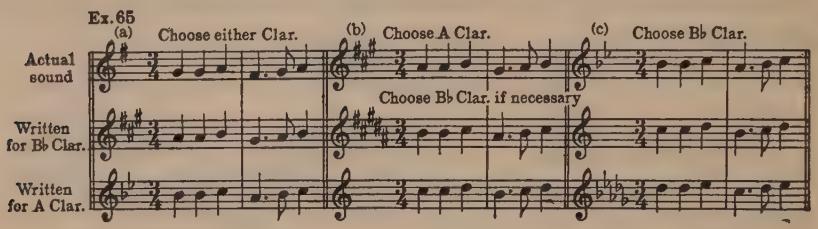
Clarinet

Ex. 64



134. *Choice of Clarinet.* General Rule: Choose the clarinet which permits the smallest number of sharps or flats *in the signature of its part.* Practical Rule: Since many school boys own but one clarinet (the B♭) and many skilled players prefer to use the B♭ exclusively, even to transposing their parts for this when necessary; choose the B♭ clarinet in all cases up to four

sharps or flats in its signature, or even up to five if necessary, Ex. 65.



The Bassoon

135. Music for the bassoon is written mostly in the F clef and sounds as written. For convenience the high passages are notated in the tenor clef (middle C, 4th line).

136. While less obvious than the clarinets, the bassoons hold an equally vital and important place in the wood-wind group. They are pre-eminently suited to ensemble work. When combined with the clarinets and horns their tone acquires something of the richness and body which the double-bass gains when blended with cellos and violas. Isolated, their sonority is rather meager.

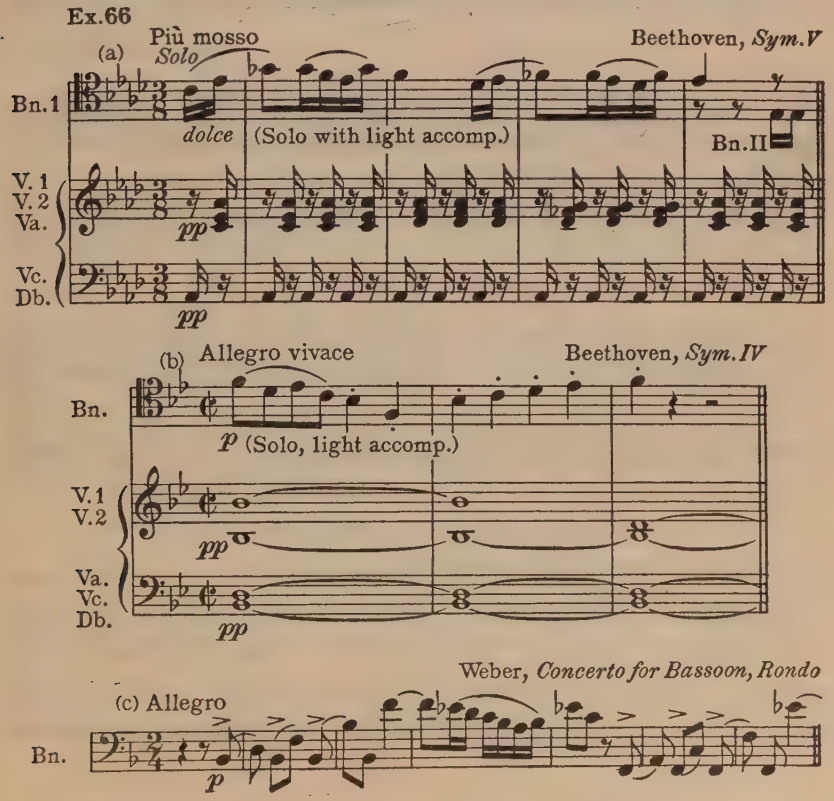
137. The bassoons are double-reed instruments. They possess a wide compass, great flexibility, and a fairly even scale. They can not play as loud as other instruments of their pitch, nor as soft as the clarinet, yet their dynamic range is adequate for all reasonable purposes. For solo (lightly accompanied), rapid scale passages, arpeggio, background, reinforcement of the bass in strings and horns, bassoons are indispensable. It is regrettable that so many school orchestras, through scarcity of players, must forego the superb support of these instruments.

138. In Bach's day the bassoons did little more than double

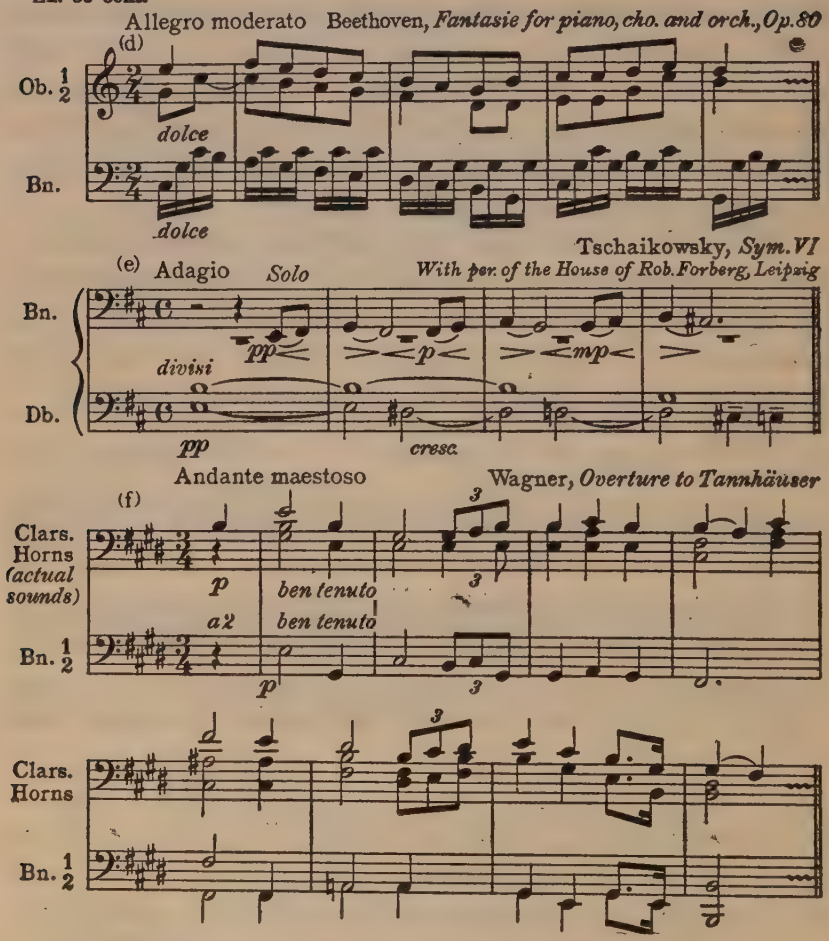
the bass of the strings. Since Haydn the art of orchestration tends more and more to nourish the inner parts, to enrich the body of the harmony in its middle register. For this enrichment, the bassoons combined with the clarinets, form an ideal quartet (soprano, alto, tenor, bass) which may be said to form the foundation of the wood-wind group (cf. § 148, 161).

139. In a limited space it is impossible to give more than a mere suggestion of what the bassoons do. It would richly repay the student to go through many standard scores giving especial attention to these particular parts. Begin with Haydn and Mozart; proceed to Tschaikowsky, Rimsky-Korsakow, Elgar.

Ex.66



Ex. 66 cont.



On the Use of the Wood-Winds

140. In the table, Ex. 61, the wood-winds appear in what is termed their normal order, that is, reading downward: flute, oboe, clarinet, bassoon. This order is generally best. For special purposes, for example, to throw a certain timbre into relief, or to obtain a peculiar resonance, etc., parts are sometimes

crossed, or dove-tailed as has been shown in the use of strings (Exs. 49, 51).

141. One of each kind is called solo wind; two of a kind, winds in pairs; three, winds in threes, etc. Two of a kind playing in unison is indicated by *à2*, three in unison, by *à3*.

142. The ways in which the wood-winds may take their place in the orchestra are three: (1) as an independent choir with all the other instruments silent, (2) wood-wind melody accompanied by the strings, (3) to color the sonority of other instruments or complete the harmony, or act as an accompaniment. Scores should be examined with special reference to these three uses of the wood-winds. Illustrations of the three uses will follow in the order stated.

The wood-wind as an independent choir

143. This includes any passage in an orchestral score where only the wood-winds play. Such passages are seldom long. Their beauty is enhanced by a not too frequent use of winds alone.

144. The flutes, oboes, and clarinets are essentially soprano instruments. Harmony for them alone is best in close position, as in the chorus for women's voices. The lower range of the clarinet, covering the low alto notes when necessary, make possible the occasional open position found in such a chorus, but the lowest notes of all the wood-winds are coarse, reedy, or whistling, that is, of a quality that will not blend well with the middle register of any of them, and therefore must be used with caution.

145. The bassoons are bass-tenor instruments. Alone or in conjunction with the lower notes of the clarinet, they are well adapted to harmony in close position in the region of the men's chorus.

146. For harmony adapted to the mixed chorus there

should be both bassoons and instruments from the soprano group.

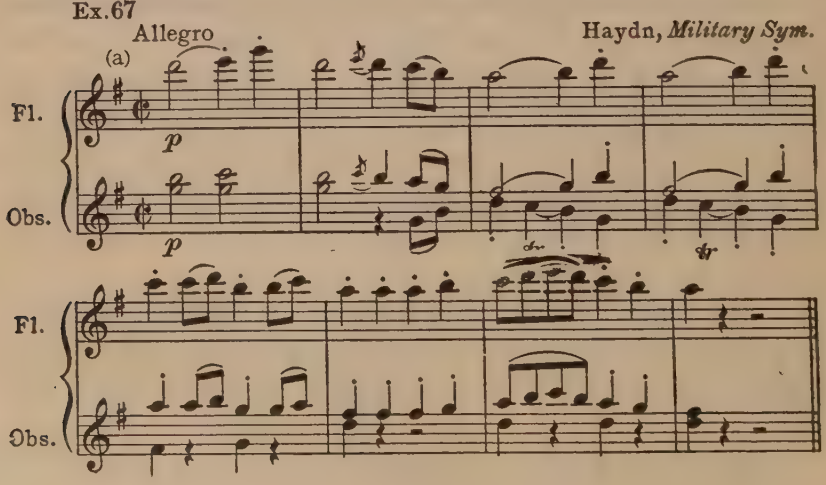
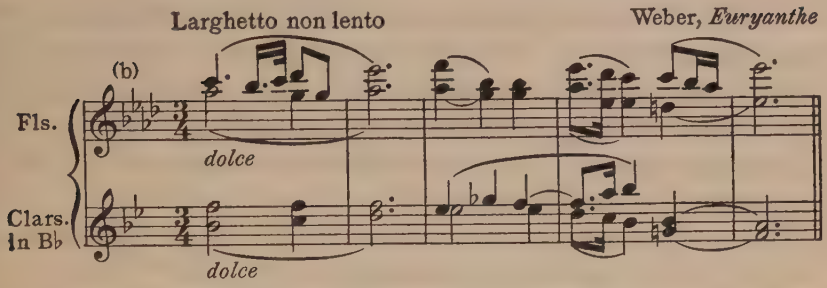
147. The modern orchestrator tends strongly to close position for his wood-wind, and to the use of winds in pairs, threes or even fours. Solo winds, three or four different timbres playing as a trio or quartet, are usable, if necessary, but never provide an ideal resonance. Such winds can be used in better ways.

148. The foundation of the wood-wind harmony is a quartet consisting of clarinets and bassoons in pairs. These are the wood-winds most closely allied to the strings, and since their combined range is large they can be entrusted with a wide variety of passages. They are equally adapted to the low or to the middle-range harmony, and their resonance is much superior to that of four solo winds.

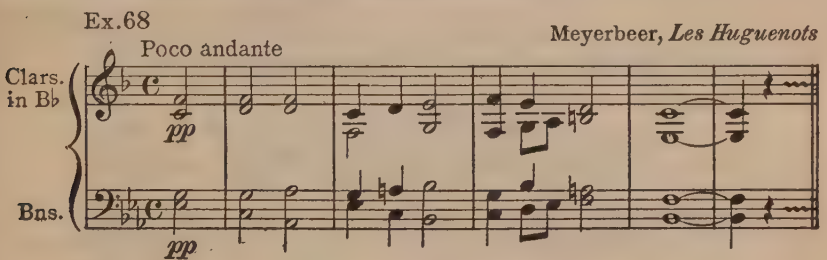
149. A few examples of the wood-winds as an independent choir are here given. Happily placed in the course of a composition, such passages possess an inexpressible charm (§ 150-3).

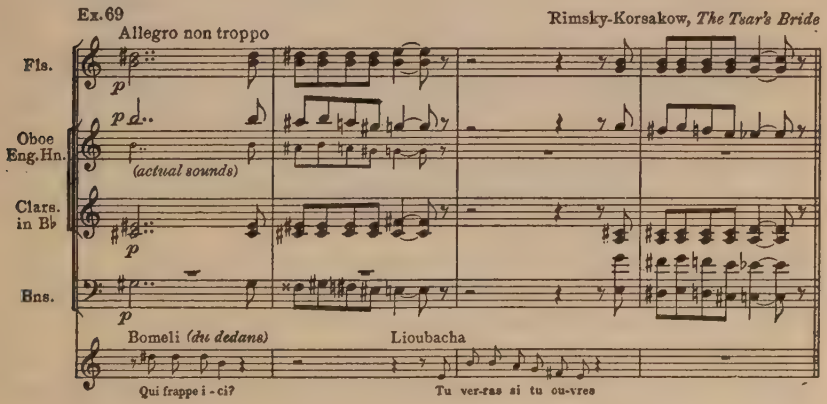
150. Soprano instruments playing high or in the upper middle range, Ex. 67.

Ex.67

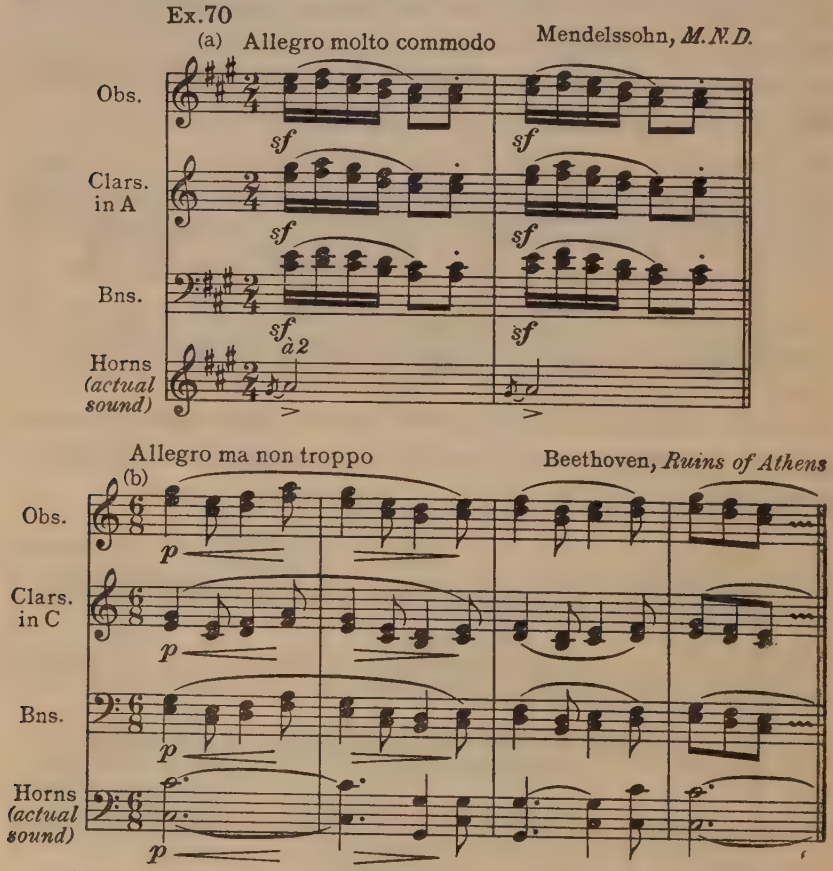


151. Lower register of the clarinets combined with the bassoons, somber, gloomy, even sinister, Ex. 68.



152. Oboe above flutes, and bassoon above clarinets, gives peculiar prominence to the melody—an example of disturbance of the normal order, Ex. 69.

153. Winds in pairs in superposed double thirds, in two and in three octaves. They seem to take a special delight in this, and at such times abandon themselves to the doubled melodic line and trust to the support of (usually) the horns. The effect is typical and charming, Ex. 70. The actual sounds of the horns are given for present convenience.

Ex.70



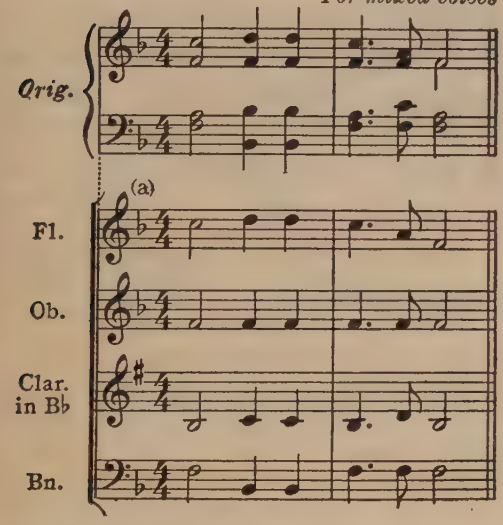
154. Before leaving the subject of wood-winds as an independent choir, several arrangements for them should now be made.

With the assignment of the first of these we shall conclude the present lesson.

Arranging a choral for mixed voices for four solo winds

155. A quartet of solo winds, (1 fl., 1 ob., 1 cl., 1 bn.) is best suited to the harmony of the mixed chorus. They can do any choral, or similar four-part harmony for mixed voices, except where the alto is too low for the oboe. In other words, for four solo wood-winds open harmony is best. Four different timbres in close position should be avoided, or, if necessary, kept in the higher rather than lower positions.

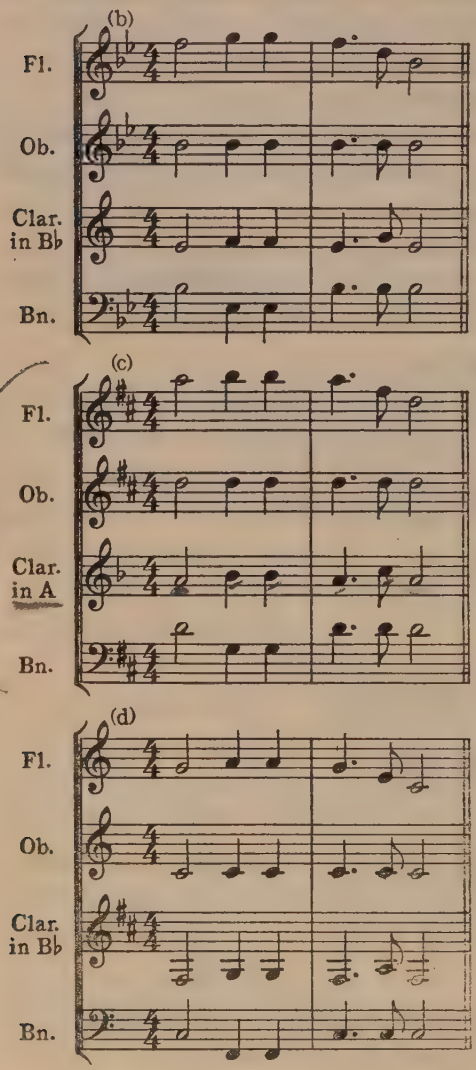
Ex.71 Russian Hymn *For mixed voices*



156. To set the *Russian Hymn* for the four principal wood-winds, one should arrange them in the normal order, and give to each its own staff, as shown under Ex. 71.

157. Ex. (a) is what one would write if these instruments had to play with a group of singers, keeping, because of this, the original key. Not a fine resonance. The flute is sweet and mellow but weak, the oboe thick and relatively too prominent, the clarinet passable, and the bassoon excellent; but all will be found within the range of the instruments and with a chorus singing it would go very well.

Ex. 71 cont.



158. In (b) the higher range is better for both flute and oboe; the former will be clear and bright, the latter sweet. The other instruments are good. Though too high for singers, it lies in a good key for winds alone.

159. Ex. (c) is the best of these four models. Here one chooses at pleasure a key high enough to afford all the instruments the advantage of their most effective range. Though this part of the bassoon is not so heavy as its lower octave, it can provide an excellent bass for the group. The B♭ clarinet (written in E major) would be equally good here and many players would prefer it.

160. Ex. (d) illustrates what not to do. It is too low. Not only do four different timbres require open harmony, but they are better in the higher than in the lower ranges. For ex-

ample, here the flute is weak and breathy, the oboe raw and coarse, the clarinet dark and sonorous, and the bassoon thick and full. Such a setting would have a timid soprano, an unbearable alto, and altogether a disappointing resonance.

Assignment 21

Arrange the *Russian Hymn* in its original key for four solo winds, flute, oboe, clarinet, and bassoon (see Ex. 4). Use the B♭ clarinet, and four staves as shown in Ex. 71(a). Omit the filler notes.

Also arrange *America, the Beautiful* (*Materna*) for this same quartet of solo winds. The original key is too low for a fine resonance, though possible if it were necessary to play with singers. Transpose it up to G major. Use B♭ clarinet written in A (three sharps).

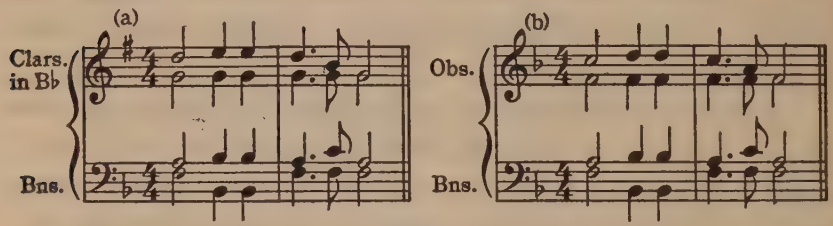
These two arrangements, one supposed to keep the original key for use with singers, the other transposed to a higher key solely to obtain the finest resonance in the instrumental group, should be placed on opposite pages and their purpose indicated.

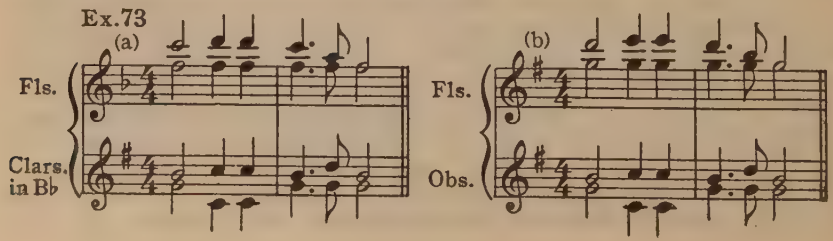
Note: Solo winds, used as in this lesson throughout an entire composition, are seldom employed as compared with winds in pairs. Nevertheless, many beautiful arrangements for solo winds could be made by the ambitious student, especially if he himself played one of the instruments and selected his music with the necessary discrimination. The wind section of nearly every amateur orchestra suffers from too little practice in small groups—practice of easy music especially arranged for them and not merely consisting of their parts as they exist in full scores. Although modern arrangers accomplish remarkable things in making a score, of say 24 parts, available for any group that employs a piano and a first violin, still such an "every-purpose" score seldom meets the needs of a small group of winds who wish to enjoy fine things done especially for their instruments. In other words, with all the excellent material which many leading houses now provide, there is still room for beautiful pieces adapted to the particular group of winds of which the student-arranger may happily be a member.

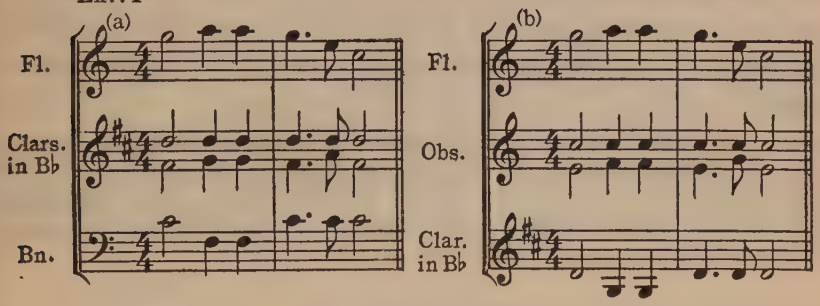
LESSON 22

161. As has been stated, the clarinets and bassoons in pairs form the foundation of the wood-wind harmony; they are in a way, therefore, the "string quartet of the wood." Before the advent of the clarinet, composers used a pair of oboes with the bassoons for the same purpose. This was less elastic but excellent. This combination requires care in placing the second oboe whose lowest tones are likely to spoil the resonance. A quartet of flutes and bassoons is more rare and little used. The flutes in this combination must play in their lower, rather neutral, range.

162. Various settings of the *Russian Hymn*, employing one or more winds in pairs, will illustrate both good and bad procedure. Both (a) and (b), Ex. 72, are excellent.

Ex.72

163. Ex. 73(a) is not fine. Ideal resonance can not be expected from all soprano instruments playing open harmony; yet this is a possible combination, and certainly better than (b) where the second oboe is low, raw, and coarse.

Ex.73

164. Ex. 74(a) is satisfactory and does the open harmony well. The sweet clarinets in this range blend with both their upper and lower neighbors. In (b) the second oboe is rather too prominent. This arrangement is inferior to (a).

Ex.74

165. The foregoing models are only a few of the possible combinations, but will serve to form a basis for further studies. To present the wood-winds and some of their uses has required several pages. At this point let the student fix in mind the following:

General Principles

1. The wood-winds rank next to the strings in importance.
2. Their various registers demand special attention.
3. Their easy middle range is generally best.
4. The oboe is a "red" individualist, but precious.
5. The clarinet is the most useful of them all.
6. Every orchestra should have bassoons.
7. There are three types of wood-wind employment in the orchestra.
8. A quartet of solo winds is usable, but not superior.
9. Ideal resonance requires winds in pairs, threes, etc.
10. The modern orchestrator tends to write his wood-wind harmony close.

Assignment 22

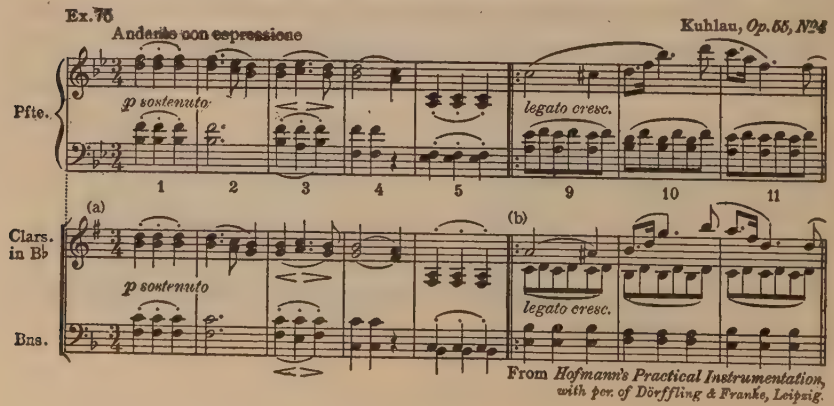
Arrange the *Russian Hymn* in its original key for clarinets and bassoons in pairs as begun in Ex. 72(a).

Also arrange *Ein Feste Burg*, Luther, for one flute, one bassoon, and two clarinets. Transpose this choral up to A major for finer resonance, and use A clarinets (playing in C major). This use of A clarinets is not necessary, but better for this assignment.

Note: The student who has three different instruments available, for example, a flute, a clarinet, and a bassoon, need not hesitate to arrange for them any trio and "try it out." The chief point to keep in mind is the choice of key which allows each instrument its best available range. Numerous combinations, determined purely by the players at hand, rather than by a demand for ideal resonance, could be profitably made and played over as studies in color.

LESSON 23

166. The next problem is less simple: to arrange the *Andante* of Kuhlau, *Sonatina, Op. 55, No. 4.* To retain the original key would keep the bassoons in an uncomfortable range and force the clarinets needlessly high. In this case it is better to transpose the piece down to F and use B♭ clarinets.

167. Notice that in (b) the clarinet 2 takes the eighth-note figure while the bassoons play quarters. A literal transcription

From *Hofmann's Practical Instrumentation*, with per. of Dörffling & Franke, Leipzig.

of the original would be too thin through this strain. In the original in a few places the G clef is used. Remember that it is the tenor clef (middle C, fourth line) which is used for the bassoon's high notes, when one leaves the F clef (cf. § 135).

Assignment 23

Arrange the Kuhlau *Andante*, begun in Ex. 75, for clarinets and bassoons. There are 27 measures; space them to just fill one page, placing the original above the winds as shown.

Other beautiful numbers suitable for wood-winds are:

Mozart, *Sonata in A major, Thema* (18 measures) 2 oboes, 2 bassoons. This would need a few filler notes and sustaining bass in measures 9-10.

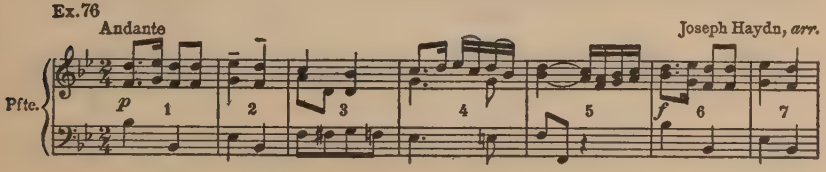
Mendelssohn, *Op. 72, No. 3* from his *Six Pieces for Children*, 2 clarinets, 2 bassoons. Original key.

Schumann, *Kinderscenen, No. 2*, 2 clarinets, 2 bassoons. Those who did this for strings could easily make a good arrangement for wind. The original key is good.

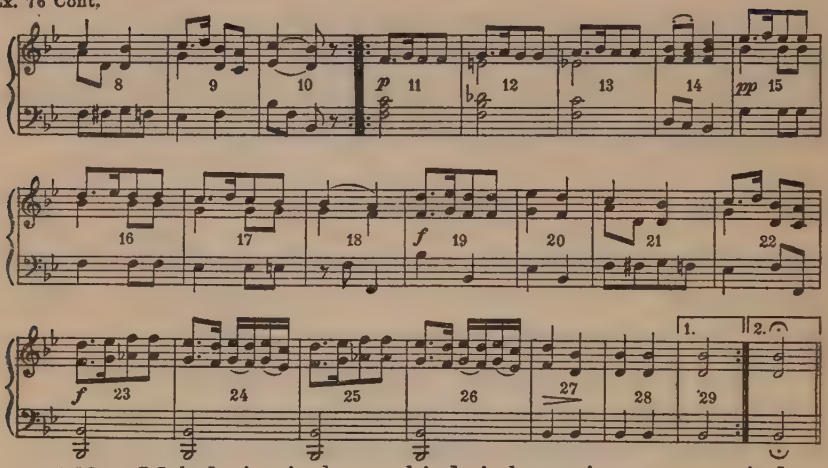
LESSON 24

168. The following version of a theme by Haydn is very simple, in three-part harmony, except in a few measures, and contains interesting material for wood-wind treatment. This theme is the basis of Brahm's *Variations for Orchestra* which would make an excellent study *after* the pupil has made his own score.

Ex. 76



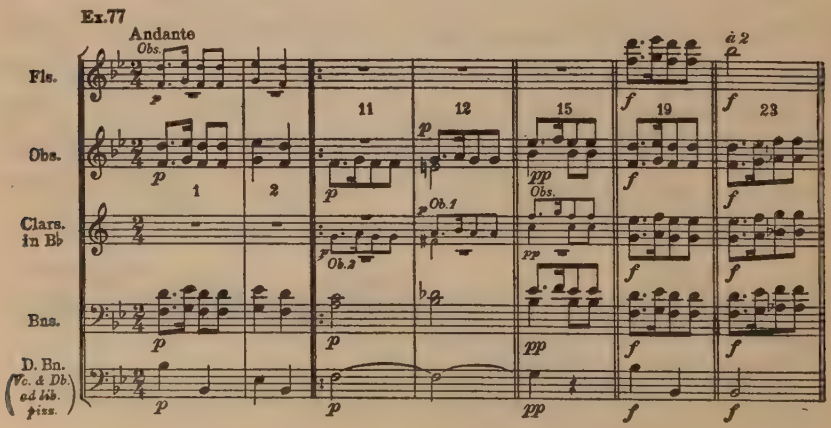
Ex. 76 Cont.



169. Melody in sixths or thirds is best given to *one timbre*, hence wood-winds in pairs should be used here if possible.

170. It is suggested that the score consist of flutes, oboes, clarinets, and bassoons in pairs, with one double-bassoon which, like the double-bass, transposes the written notes down one octave. A string bass could play the same notes with excellent effect if desired. Here follow suggested beginnings of the well contrasted parts, Ex. 77.

Ex. 77

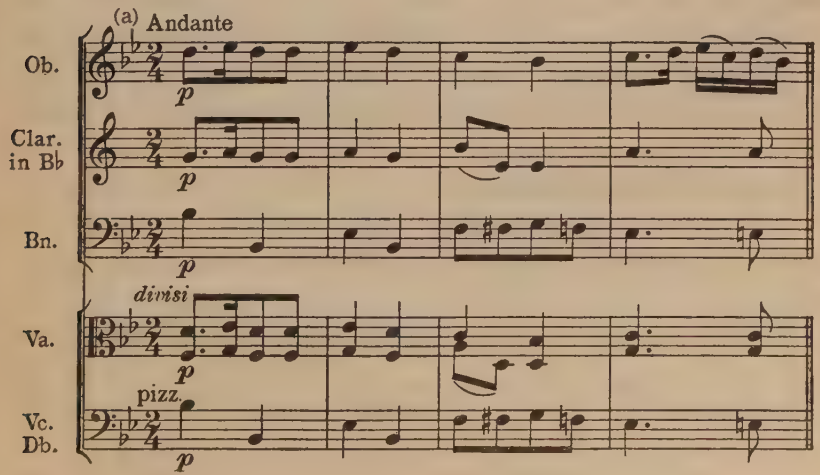


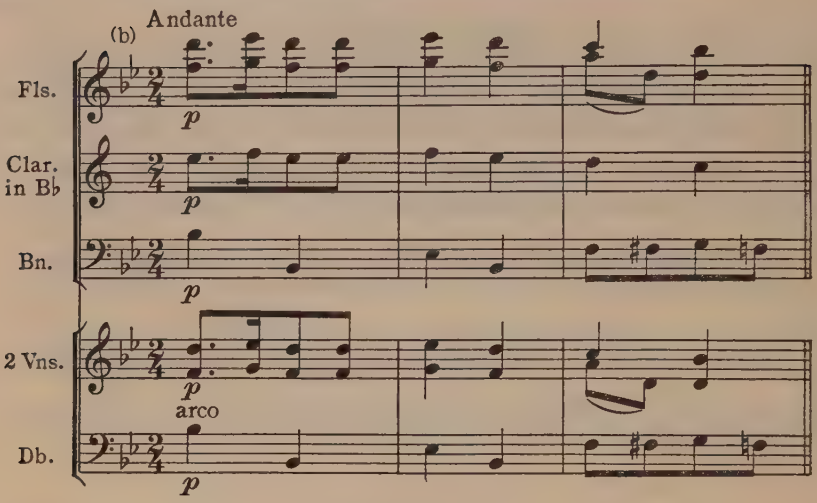
Assignment 24

Arrange the *Theme* from Haydn, Ex. 76, for wood-winds in pairs with one double-bassoon as outlined in Ex. 77. For the first 10 measures use no flutes or clarinets, but cue the oboes into the flutes. Make the cue-notes small enough to contrast sharply. The flutes, in the absence of oboes, can then do this strain. In measures 11-18, cue the oboes into the clarinets. Notice that this cue is to a transposing instrument and must be copied *where it will sound right* when the clarinets play it. In measures 19-22 the four pairs double as shown, and, from 23 on, the flutes play *à2* on high B♭.

Note: To make the most of this study, it should also be arranged for the particular instruments locally available, and played for the benefit of the class. Always give the sixths to instruments in pairs, where possible. If this is impossible, say, with but one cl., one ob., one bn., support them with strings as in Ex. 78 (a). This would sound well. Or with such a group as in (b) it is better to complete the little piece and hear it, even though it fall quite short of an ideal resonance.

Ex.78





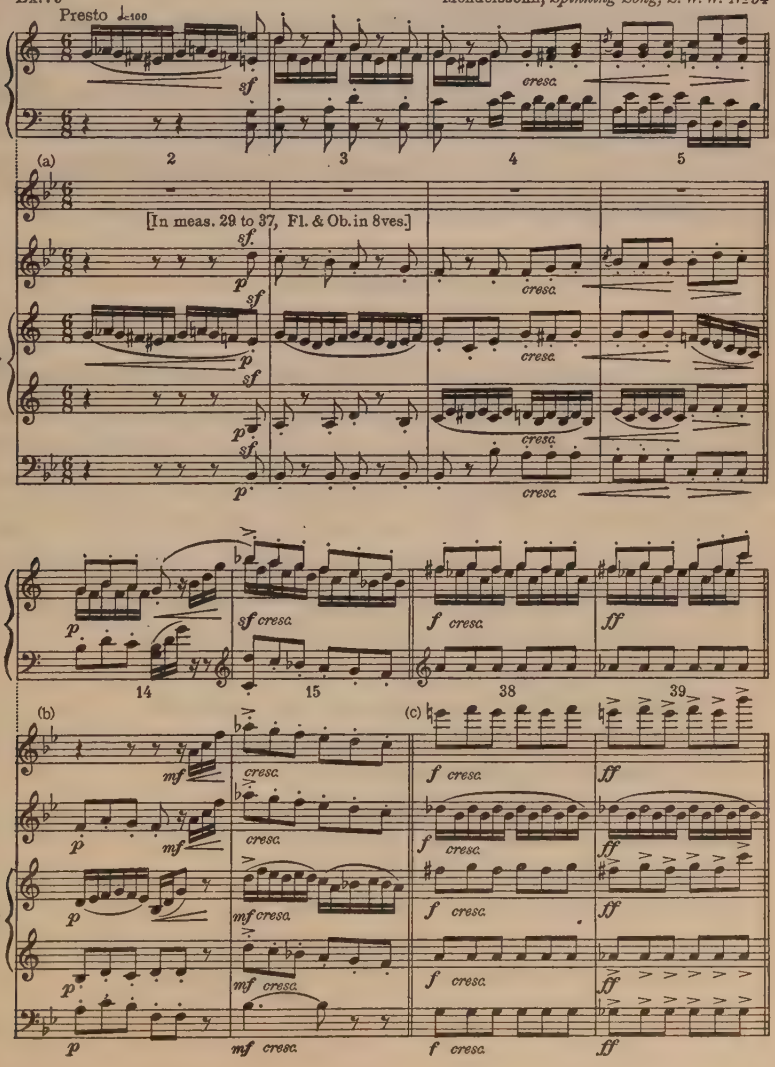
LESSON 25

171. An effective setting of Mendelssohn's *Spinning Song* can be made for five wood-winds, studies for which are shown in Ex. 79(a), (b), and (c). We have seen (Ex. 29) how chords must sometimes be lifted and respaced; how (Ex. 45) material must be added that does not appear at all in the piano score; and how (Ex. 75) harmony is divided among wind instruments to give each its most appropriate idiom. These all required a fair knowledge of harmony. The present problem, demands more—knowledge of harmony plus skill in the manipulation of a more or less contrapuntal accompaniment.

172. The "spinning-wheel" effect of flowing sixteenth-notes must be so devised as to "lie" in the clarinets. It must be "clarinet music." At the same time, the harmony should not be essentially altered where notes are added to maintain the "flow." A close study of these three models should enable a student to do this fine number.

With five instruments, no one of them should be required to play throughout the piece. In a total of 96 measures the flute and oboe might well have 20 to 30 in rests. Rests well placed are eloquent.

Ex.79 Mendelssohn, *Spinning Song, S. W. W. N234*



Assignment 25

Arrange Mendelssohn's *Spinning Song* for 1 flute, 1 oboe, 2 clarinets, and 1 bassoon, through the first 40 measures, using the models under Ex. 79 as desired. Let clarinet 1 begin alone (measure 1 is here omitted merely to save space) and notice that the clarinets occasionally relieve each other on the sixteenth-note figures. No flute till measure 14. This assignment needs four hours. The student whose score is best might complete this number for his "project" while the others follow the suggestions given below for their project 4.

PROJECT 4

(To follow Lessons 21 to 25)

Select a number suited to treatment for wood-winds, and arrange it all for some group of instruments that you believe would be able to do it best. If the piece offers opportunity for contrast in color, take advantage of this fact and avoid a setting that might be monotonous. The contrasts suggested in Ex. 77 may be suggestive. The longer numbers, of those which follow, would require several hours work, but are well worth the time.

Numbers suited to this part of the course are:

Mendelssohn, *Kinderstücke, Op. 72, No. 1*
Mendelssohn, *Song Without Words, Op. 102, No. 6*
Mendelssohn, *Song Without Words, Op. 30, No. 3*
Mendelssohn, *Song Without Words, Op. 19, No. 4*
Mendelssohn, *Song Without Words, Op. 62, No. 4*
Grieg, *Op. 17, No. 13, Traveler's Song*
Kullak, *Barcarolle, Op. 62, No. 7*
Schubert, *Deutsche Tanze, Op. 33, No. 7*
Beethoven, *Andante, Op. 26 (Piano Son.)*
Beethoven, *Menuetto, Op. 31, No. 3 (Piano Son.)*

LESSON 26

Wood-wind melody accompanied by the strings

173. The simplest, but far from least efficacious procedure, is announcement of the melody in a single wind. The appeal of such an entry—as a true solo part—is always felt. Variety of color and expression is greatest when individual, instead of composite, timbres are used in this way.

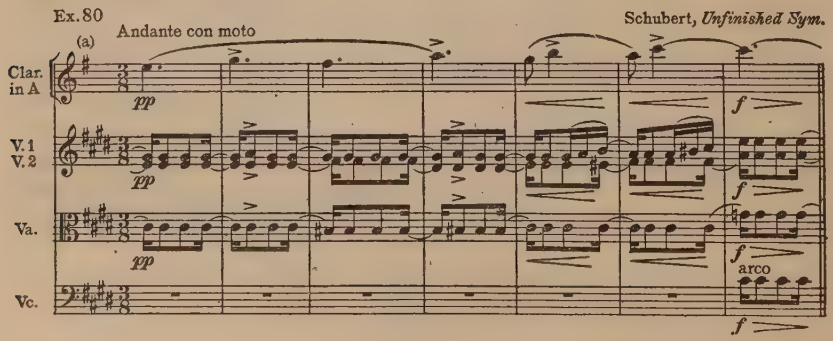
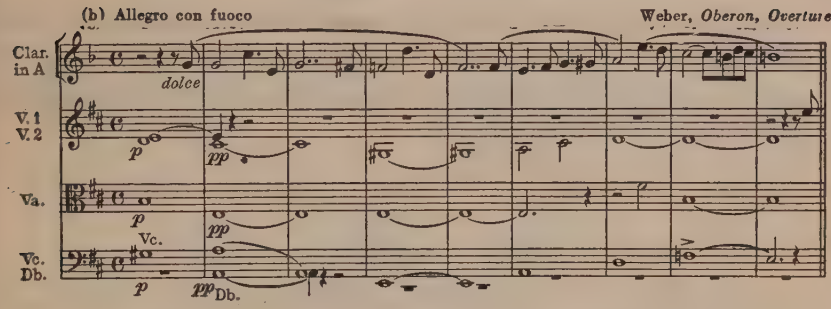
174. Any two or more instruments may unite in the unison or octave, double octave, etc., on any desired melodic line. Such combinations of timbre produce composite colors of more or less value.

SOME COMBINATIONS OF WOOD-WIND IN THE MELODIC LINE

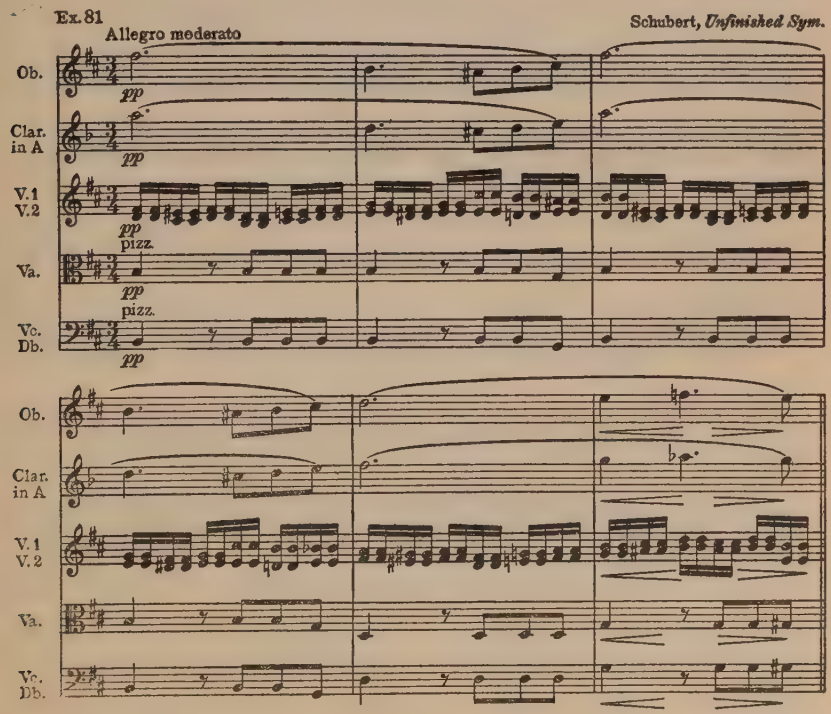
	In the Unison	In the Octave
(a) Two flutes, or any two *similar* instruments.	Melodic line strengthened; adds no new color; destroys individuality of a true solo part.	Combines weak registers with strong, not generally advisable.
(b) Flute and oboe	Good.	Better. Piquant.
(c) Flute and clarinet	Soft in mezzo-sop. range.	Full resonance, perfect blend (fl. above cl.) Lowest register, mysterious.
(d) Flute and bassoon	Little value.	Fine two octs. apart with cl. between. Classic.
(e) Oboe and clarinet	A favorite of Schubert. Incisive; high, intense.	Very rich (cl. below). In chalumeau register cl. vibrant support to the ob.

Some Combinations of Wood-Wind in the Melodic Line—Continued

	In the Unison	In the Octave
(f) Oboe and bassoon	Little value.	Oboe does not mix. Less used now than formerly.
(g) Clarinet and bassoon	Good, intense.	Fine, rich but not brilliant. Perfect blend. Low register sombre.
(h) All soprano woods	Intense. No special value.	Excellent on reaffirming a melody already presented by a solo wind (or string).
(i) Flute and oboe, unis. combined with clarinet and bassoon unis.		Two composites in octs; interesting treatment of two composites as if they were primary colors. Newer practice.

175. Because the strings have the power to subordinate themselves as required, and since the difference in timbre is marked, any wood-wind solo will "come through" a string accompaniment, if given a reasonable opportunity. The melody will come out best when entirely above the accompaniment, Ex. 80(a), (b).



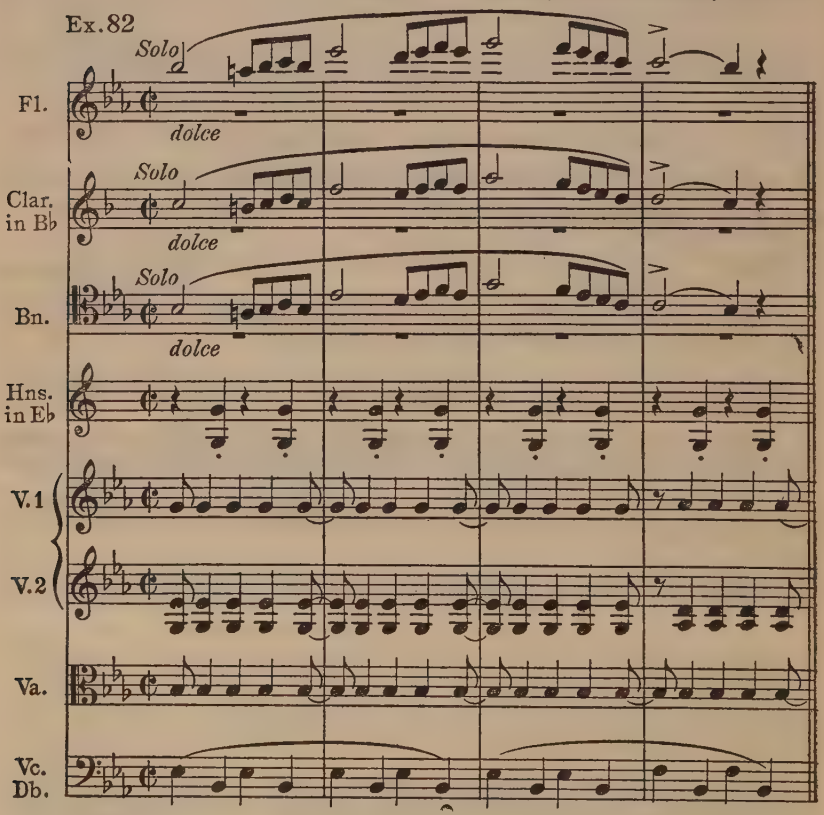
176. Schubert was fond of doubling the oboe and clarinet in unison. The pungent oboe is sweetened by the clarinet, but the color remains intense, Ex. 81.



177. In Ex. 82 the melody in three octaves comes out rich and full in the wood against a closely spaced string accompaniment. The clash of the bassoon figure against the string chords is of no moment (cf. § 110).

Weber, *Der Freischütz, Overture*

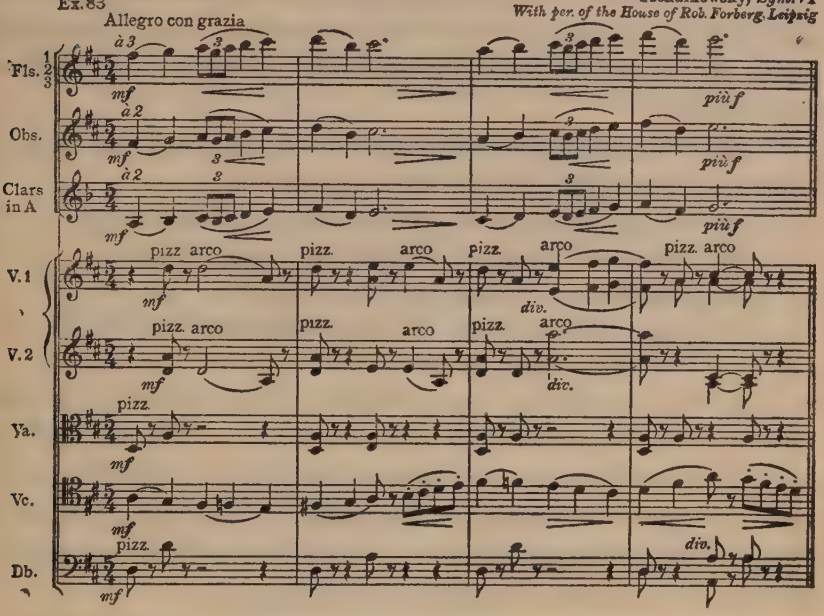
Ex. 82



178. After the opening eight measures of this interesting five-four melody in cellos only, it is at once restated (or continued) in three different octaves by the entire choir of seven soprano wood-winds, Ex. 83.

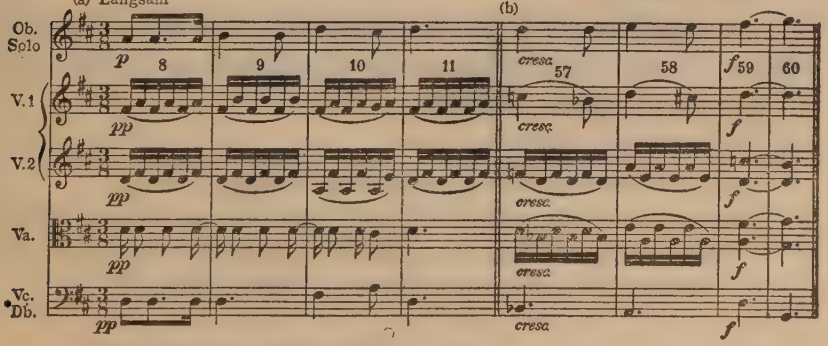
Ex. 83

Tschaikowsky, *Sym. VI*
With per. of the House of Rob. Forberg, Leipzig



179. Several interesting problems in the use of wood-wind melody with string accompaniment may best be studied by selecting such a song as Schubert's *Du bist die Ruh* and treating it as suggested in Ex. 84. The original is in E♭, a key that might

Ex. 84

Schubert, *Du bist die Ruh*

* Double-bass only when melody is doubled in the octave

have been retained, but D is easy for the strings and still gives the oboe the advantage of some of its finest notes. The strings may begin their introduction, measure 1, as shown in the model in measure 8.

180. The string accompaniment to this song may now be used unaltered for any of the following instruments:

(a) Clarinet solo sounding in the same octave as the oboe.
(b) Flute solo written an octave higher than the oboe.
(c) Bassoon solo written an octave lower.
(d) Any two, or three, of these wood-winds combined in the melodic line, see table, § 174.

It would be best to present all of the first stanza in one wind even though one or two others were available. Then beginning with the second stanza, instruments might be combined on the melody in such a way as to heighten the interest as the climax is approached. This can hardly be termed "orchestrating" but is a valuable study of what to do with small means.

In arranging a song in this way, avoid using any wind in the accompaniment. The strings are adequate and a single wind attempting to help them might easily become ridiculous.

Assignment 26

Arrange Schubert's *Du bist die Ruh* for oboe solo with string accompaniment. Or, if desired, give the solo to any other wind, or winds, as suggested in § 180.

Other suitable numbers are:

George Henschel, *Oh that we two were Maying* (Duet)
Santa Lucia (Barcarolle [Naples]), and *Dearest Maiden* (Shepherd's Song [Norway]), from *One Hundred Folksongs of all Nations (The Musicians Library)* Oliver Ditson Co.

LESSON 27

Wood-wind used to color the sonority of other instruments or complete the harmony, or act as an accompaniment

181. This is by far the largest of the three classes of wood-wind usage. Under this head come numberless combinations of wood and string in the melodic line, in the harmonic mass, in dialogue between contrasting solo instruments or opposing groups, and finally by quite reversing the usual procedure and accompanying a string melody by winds alone. In arranging music for the dance-, theatre-, or school-orchestra, whether for a few instruments with piano, or for a larger group, one is constantly challenged by the demand for maximum effectiveness in resonance, color variety, and dynamic contrast; and, from the player's standpoint, for parts that "lie well" in the individual instrument. When an audience demands the repetition of a number, and the players become enthusiastic over their parts as well as over the piece as a whole, someone behind the scene has met this challenge and has done a fine piece of arranging.

SOME COMBINATIONS OF WOOD-WIND WITH STRINGS IN THE MELODIC LINE

	In the Unison	In the Octave
Flute and violin	Good. In soft melody fl. adds an idyllic quality to sparkling vi. Nothing gained in *forte* passages.	Frequent (fl. usually above vi.) In a *tutti* color secondary to mere volume.
Oboe and violin	Ob. exaggerates the clarity and intensity of vi. Rather raw. Used freely by early writers. Now limit to *forte* with cl. added.	Ob. above low vi. is valuable.

Some Combinations of Wood-Wind with Strings in the Melodic Line—Continued

	In the Unison	In the Octave
Oboe and cello		Intense, brilliant, festive.
Clar. and violin or viola	Good. Cl. adds warmth to vi. Chalumeau notes with low strings resemble cellos and bassoons.	Good (cl. usually below vi.). Striking with the low cl. register.
Clar. and cello	Low—rich and valuable. Plus bassoon, eminently rich and full.	
Bassoon and violin or viola	Beautiful blend in the lower vi. register.	Good. Frequent.
Bassoons and cellos (d-bass)	Classic. Constant companions. Bn. gives body to the vc. either *arco* or *pizz.* Less good in rapid passages.	Sounding in octs. (written unison) the double-bass supports the bassoon well.

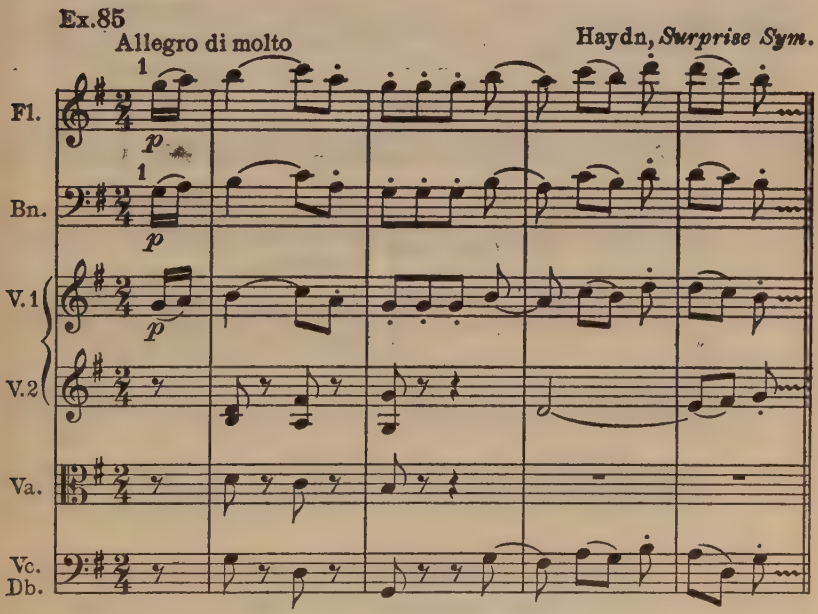
182. The student could profitably spend hours with the best scores studying this question of color in the melodic line. If the preceding table helps the score reader by suggesting how to compare color values and how to experiment with them in his own arranging, it serves its purpose. Care should be taken to avoid using too many colors. Color must not be permitted to absorb the idea of the music. Special or rare timbres must be used with discretion.

183. An opening melody is better presented in one color (whether primary or composite), that the music itself may make its impression; then, on its repetition, change of color is often desirable. Do not change color in the middle of a phrase—but this

does not preclude the use of dialogue between instruments, so frequent in the development of extended numbers. Neither does this apply to chords answering each other, for example, alternate string and wind in quick succession.

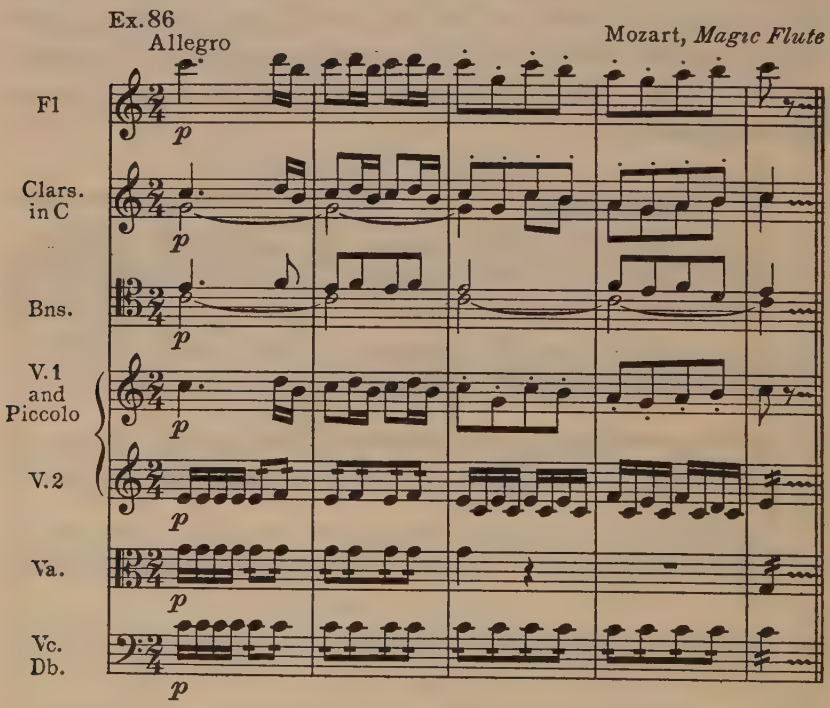
184. After opening his movement with the principal melody in violins only, and following this immediately by its repetition in octaves by flute and violins, Haydn, on its third appearance, gives the melody to flute, bassoon, and strings in the triple octave, Ex. 85. Four times, in this particular movement, he uses this combination.

Ex. 85

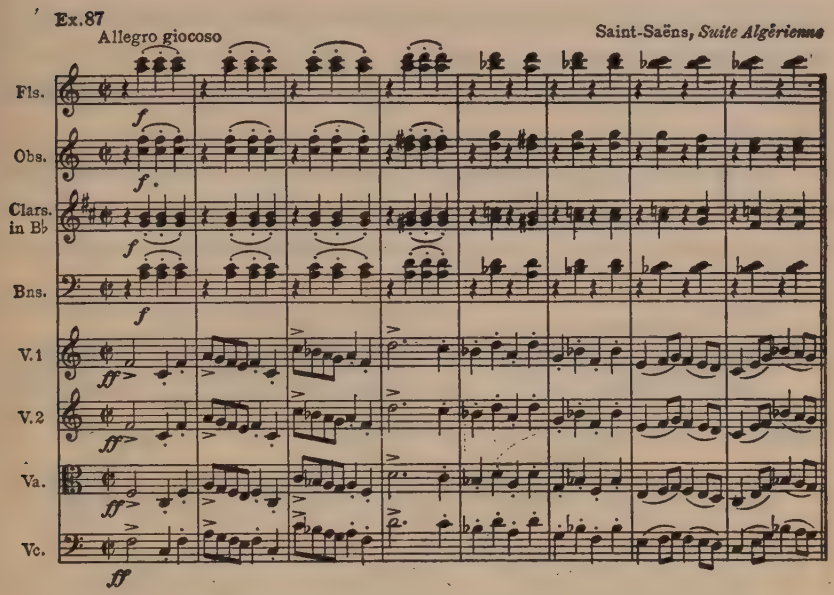


185. In Ex. 86, Mozart doubles every string part with a wood-wind. Notice the sustained harmony in the wood, while the lower strings add much to the intended spirit of gaiety through their rapid note-repetition. There are all degrees of this kind of

doubling; (a) literal, (b) exact, but with different rhythms as in this example; and (c) not exact, but varying in greater or less degree. To look for passages representing a wide variety of such wood and string combinations, would give a valuable and definite point to much of the student's score-reading.

Ex. 86

186. In Ex. 87, Saint-Saëns makes his wood-winds responsible for the entire accompaniment to the melody in octaves in the strings, a reversal of the usual procedure. For a short passage this is effective and, with a good wind choir, makes a striking contrast. A long passage of this kind, however, would weary the wind players and soon become insipid.

Ex.87



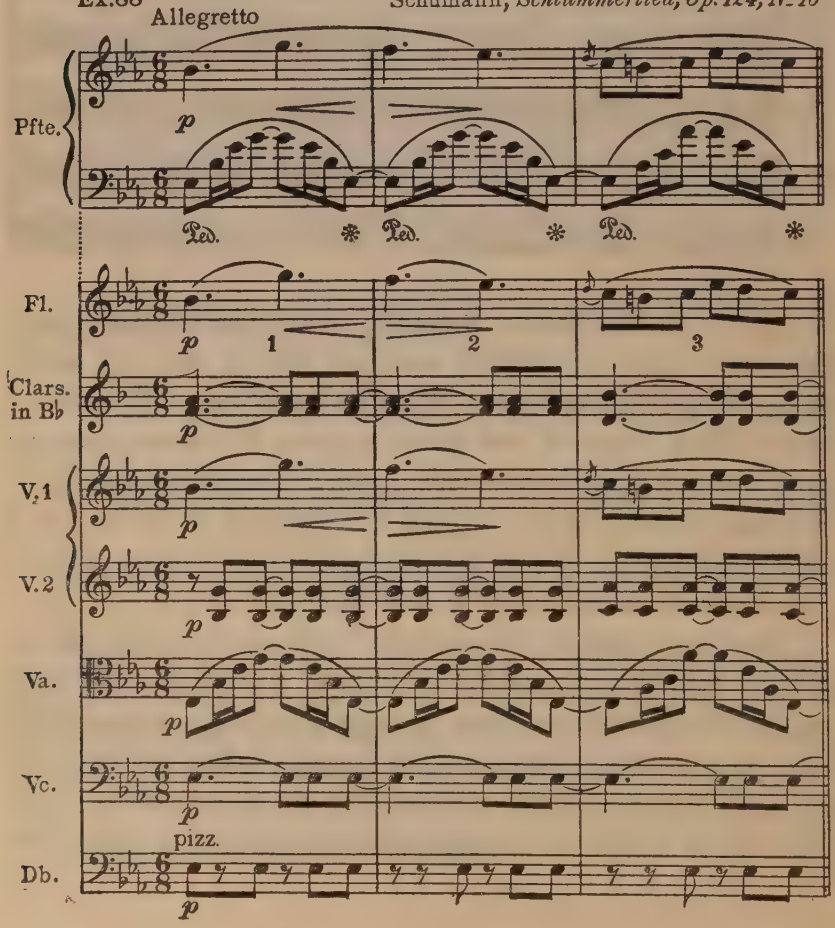
187. At this point, a fine study is to orchestrate some suitable piano music for strings combined with a very few woodwinds, for example, a single flute and two clarinets. To make the most of these resources, one should examine the chosen piece, jot down in pencil a plan that assures appropriate variety, possibility of climax where needed, etc., and then proceed to "build up" a score accordingly. It may even be best to do the climax first, to guard against using maximum resources too early.

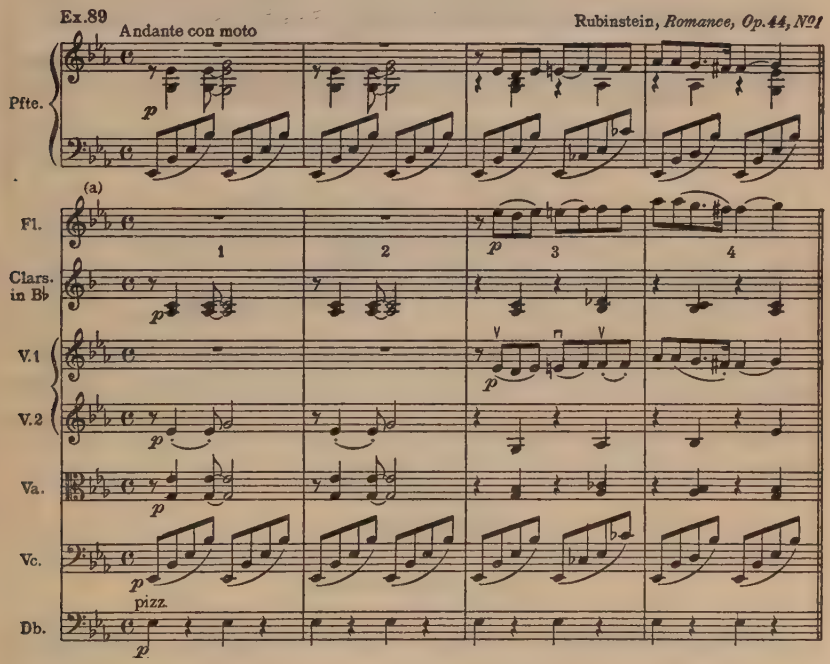
Our first number, Schumann's *Schlummerlied*, Ex. 88, requires but little explanation. The flute doubles the melody in unison with the violins in these opening measures, but since it will thus run very low in measures 7-8, it might better rest here and enter for the first time in measure 9, in the upper octave. The flute will be of no use in the accompaniment, cf. § 180. The

double thirds in the clarinets add warmth and roundness, blending perfectly with the middle strings. But if desired, clarinet 2 could double the viola on the broken chords, a better arrangement if the viola is weak as often happens in a small orchestra.

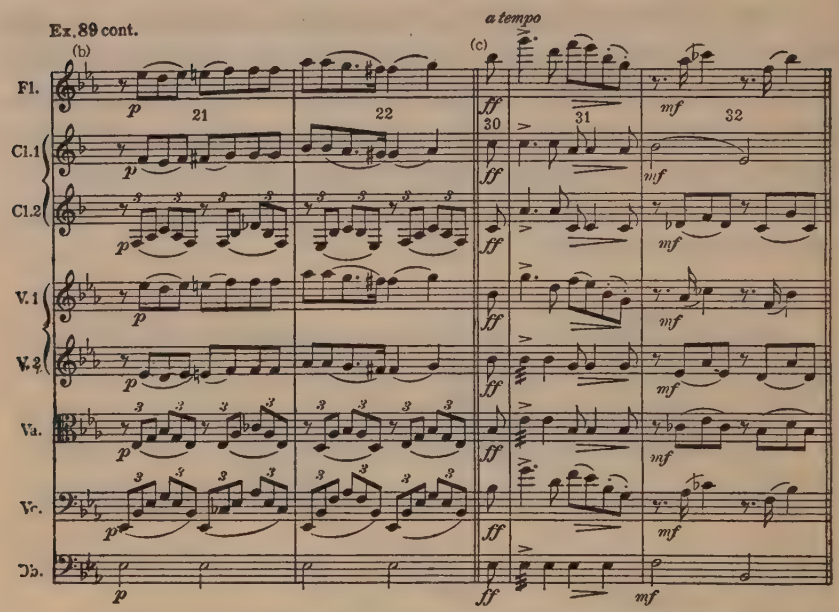
This number repeats its principal melody so many times that one must make a special study of its color combinations; otherwise it might easily become a "slumber song" through sheer monotony.

Ex.88 Schumann, *Schlummerlied, Op. 124, №16*



188. The next number, Rubinstein's *Romance*, Op. 44, No. 1, offers much more opportunity for variety, as may be seen in the models, Ex. 89(a), (b), (c). In (a) the clarinets again take essential thirds, etc., in the harmony; in (b) clarinet 2 takes broken chords in its chalumeau register, leaving clarinet 1 to double the melody with violin 2. At (c) all resources are concentrated on the *ff* climax.

Assignment 27

Arrange Schumann's *Schlummerlied* for strings and three wood-winds. If desired to restrict this to a two-hour assignment, do the first 24 measures. In this case place *D. C.* at the end of measure 24 and *Fine.* at the end of measure 16.



Alternative assignment: Rubinstein's *Romance* based on the models under Ex. 89. This number well done makes an effective setting for these instruments and is well worth the time of a double lesson.

LESSON 28

The Saxophones

189. Graduated in size from the small high sopranino in E♭—the only one which transposes up—to the heavy contra-bass in E♭, the saxophone family numbers seven instruments essentially alike in principle, fingering, and written compass. They are hybrid instruments having a single-reed mouthpiece like the clarinet, a conical tube "overblowing" the octave like the oboe, and made of brass. In the words of Forsyth, "they have no past history of which to be either proud or ashamed."

190. Omitting the two extreme sizes, mentioned above, the following table shows the written compass of the most used instruments. The tenor is made in two keys—as are all the instruments in Europe—and both appear in the table for purposes of comparison.

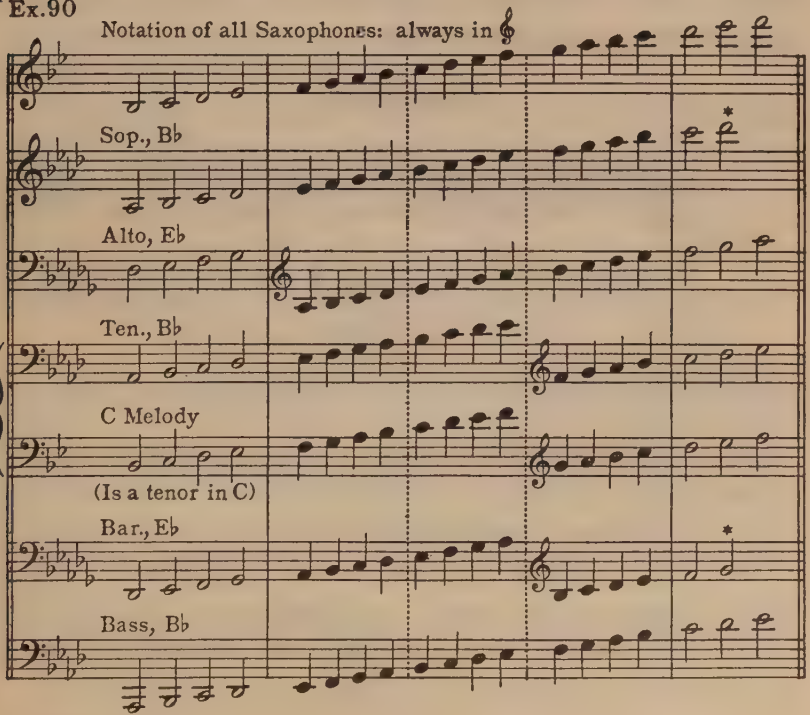
Written Compass of All Saxophones and the Corresponding Actual Sounds of Those Most in Use

(a) Easy school range: all the quarter-notes with stems.

(b) Practical range for general orchestra work: all the notes.

These instruments have all the intervening chromatic notes.

Ex.90



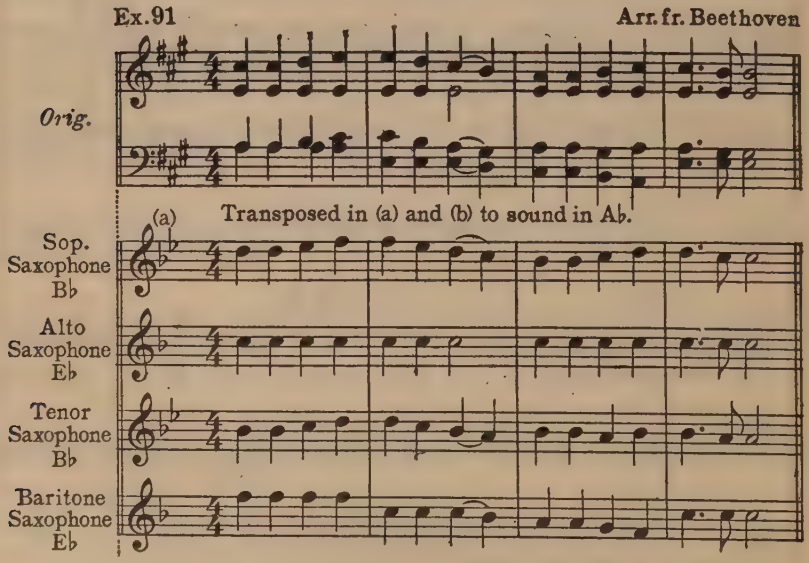
191. Music for all saxophones is written in the G clef. Illogical as this may appear to the beginner in arranging, it is simplicity itself for the player. His fingering is always the same and the instruments themselves attend to the transposing.

192. The saxophones possess flexibility and volume combined with qualities admirably adapted to the full harmony of the military band. Their friends predict their early acceptance in the orchestra, where thus far they have not been generally welcomed.

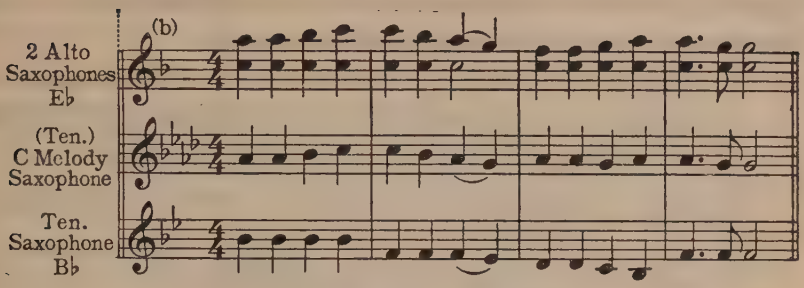
193. A quartet of saxophones unaccompanied and playing complete harmony affords a characteristic and homogeneous resonance. Some arrangements carried out as shown in the following models would sound very well:

Hymn of Joy

Ex. 91 Arr. fr. Beethoven



Ex. 91 Con.



ASSIGNMENT 28

Arrange the *Hymn of Joy* as begun in Ex. 91(a) for a quartet of saxophones—soprano, alto, tenor, baritone, to sound in A♭.

Also arrange the same number for one alto, two C melody, and one B♭ tenor.

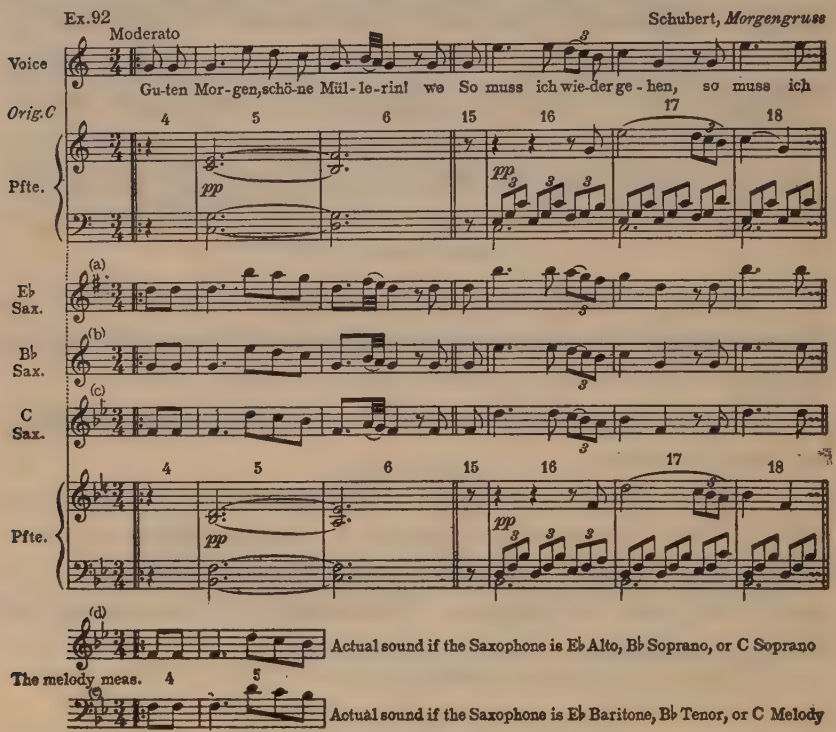
Any of the fine chorals or part-songs for mixed chorus are suitable for combinations of this kind. Before beginning an arrangement the piece should be examined with reference to the range each part will require. Occasionally a transposition will be found advisable.

LESSON 29

194. It is sometimes desirable to so arrange a melody for saxophone with pianoforte accompaniment, that any member of the saxophone family may be used with the *one* copy of the piano part. This procedure is illustrated in Ex. 92, with Schubert's *Morgengruss.* Since the melody does not run high, the original key of C could have been kept, but we have transposed it to B♭, thus making the highest *written note* for the E♭ instruments their easy high C.

A separate part is written for E♭, B♭, and C saxophones, as

shown below, all of which sound as at (d) with soprano or alto instruments, or as at (e) with tenor or baritone.



195. Some of the widely used school orchestra scores provide for the use of saxophones, others do not. As an economy measure, some editions are made to give the same music to different instruments. For example a B♭ clarinet part may carry the caption *B♭ Clarinet or Soprano Saxophone.* Since these instruments transpose the same distance they would sound in unison. In this way oboe parts are playable by the C soprano saxophone, since both sound as written. The number of such substitutions is considerable, when dealing with both band and orchestral instruments, but from an artistic standpoint too much "economy" in this direction tends to cheapen the quality of a score.

196. A well-known device for playing bassoon parts with E♭ saxophones is to change the clef and add three sharps (or remove three flats, or their equivalent) as shown in Ex. 93.

Ex. 93

197. The treble clef with its signature in parenthesis, makes this bassoon part a typical saxophone melody. When a player understands this really very simple scheme he requires no written indication but simply "thinks" the treble clef and the added sharps, and plays any bass part within his range. Those not familiar with this juggling with the clefs should compare Ex. 93 with Ex. 92(a), (e). Observe that the written notes are identical. With a baritone saxophone the player reads the notes, treble clef, where they are; with an alto saxophone he reads them as if written an octave lower, so far as his range permits. In either case the part will then sound unison with the bassoon.

Assignment 29

Complete the arrangement of Schubert's *Morgengruss* for pianoforte accompaniment in B♭, with parts for three different saxophones as begun in Ex. 92. Do not omit the introductory bars of accompaniment. Also write at the bottom of your score *what would be* the signatures for the three saxophones *if the song had not been transposed from C.*

Other songs suitable for treatment similar to that in this lesson are:

Mendelssohn, *If with all Your Hearts,* fr. *Elijah*
Schubert, *To be Sung on the Water*
Schubert, *Who is Sylvia*
Hahn, Reynaldo, *Were my song with wings provided*

LESSON 30

The Brass

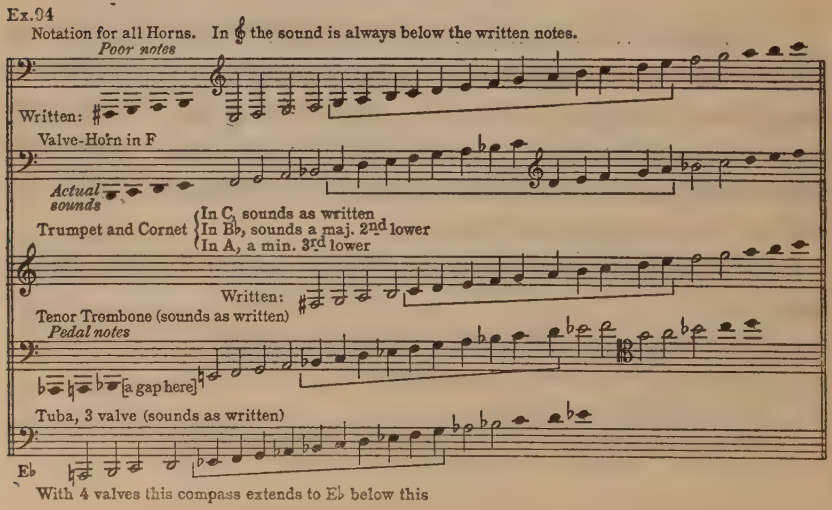
198. The *Brass* in the modern orchestra should be regarded as of two types: (1) the horns which blend perfectly with the wood-winds and are sometimes classed with the latter as part of the second group (Gevaert), (2) the trumpets, trombones, and tubas—a pompous family, indispensable to the *tuttis* of the large, or "full" orchestra. As a rule, the horns are classed with these other brasses in what is termed the third group, or simply "the brass." The brass provides the brilliance and power associated with military pomp, splendid *tuttis*, and imposing climaxes.

Orchestral Ranges of the Principal Brass Instruments

(a) **Easy school range: all the quarter-notes with stems.**
(b) **Practical range for general orchestra work: all notes with stems.**
(c) **Solo resources, better avoided: the black notes without stems.**

These instruments all have the intervening chromatic notes.

Ex. 94


Notation for all Horns. In 𝄞 the sound is always below the written notes.
Poor notes
Written:
Valve-Horn in F
Actual sounds
Trumpet and Cornet
In C, sounds as written
In B♭, sounds a maj. 2nd lower
In A, a min. 3rd lower
Written:
Tenor Trombone (sounds as written)
Pedal notes
[a gap here]
Tuba, 3 valve (sounds as written)
E♭
With 4 valves this compass extends to E♭ below this

199. As was stated regarding the table of wood-wind ranges, § 118, "easy school range" in the above table is conservative and need not be interpreted rigidly. Nevertheless the best notes, with scarcely any exception, lie in this middle range.

On Horn Notation

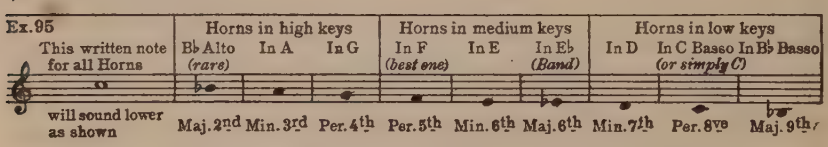
200. Until about 1850 the horn had no valves. Its only good (open) tones were limited to the harmonic series of its particular fundamental. If this were C, the horn was at its best in the key of C. To do its best in the key of F, it had to be crooked in F, that is, changed to an F horn by changing the length of its tube. Composers always wanted the horn at its best and therefore demanded a different crook for nearly every change of key. So many crooks made the player's outfit resemble a box of plumber's supplies, and changing crooks at ill-timed places in the course of a single composition became a burden. All the earlier scores and even many later ones abound in directions for horn in F, or E, or D, etc., and in some cases, with four horns, one pair in the key of the piece, the other in a related key. But, whatever their absolute pitch, one always wrote for them with no signature and as if their fundamental were C.

201. Fortunately, with the invention of valves, the whole clumsy system of crooks was largely, if not entirely, discarded; the valves gave the horn a complete chromatic scale, made it "all-horns-in-one" for all practical purposes, and, finally, as a survival of the fittest, the horn in F is the only one we need consider in modern orchestration.

202. But the scores! Fortunes are tied up in the old notation, horn players are accustomed to it, it seems "natural enough" to them, and experienced players will use a crook, or transpose the part, as seems best to them. If it were not for reading scores,

the beginner might ignore the horn's family history, but read he must.

203. Music for the horn is written almost wholly in the G clef. When so written, the sound is always lower than the written note by the distance from C down to the key in which the horn is crooked. This is shown in the following table of the most used horns, Ex. 95.



204. Occasionally low notes for the horns are written in the bass clef, *but an octave lower than they should be.* Because of this absurdity in notation, most horns *in the bass clef* transpose up, C Basso sounds where written, and B♭ Basso a major second lower.

The whole subject of horns, crooks, kinks of notation, etc., belongs in a treatise on instrumentation and not in these lessons. For excellent and exhaustive treatment read Forsyth, Gevaert, or Hofmann.

The Horn in F

205. Whether called valve-horn, French-horn, or (better) simply horn in F, this is one and the same instrument. It is *the* horn of the modern orchestra, chromatic throughout; and, when crooked in E♭, is regularly used in the military band. It blends well with wood, strings, or brass. The tone is rich, noble, dignified, mysterious, even in rapid passages seeming to preserve a certain reticence.

206. When at the maximum of their power and sonority,

the horns often represent the brilliant element of the small orchestra. In piano passages their sweet penetrating tones blend intimately with the clarinets and bassoons. So perfect is this combination that horns and wood-winds are placed next to each other in the score. Before the introduction of clarinets, the horns filled the empty space between the bassoons and the thin oboes.

207. Harmony for the horns should be well determined. In threes or fours they should be given the full chord as much as possible. In pairs, when playing the octave, 6th, or 3rd, their marvelous fulness is obvious — witness numberless passages in the earlier scores.

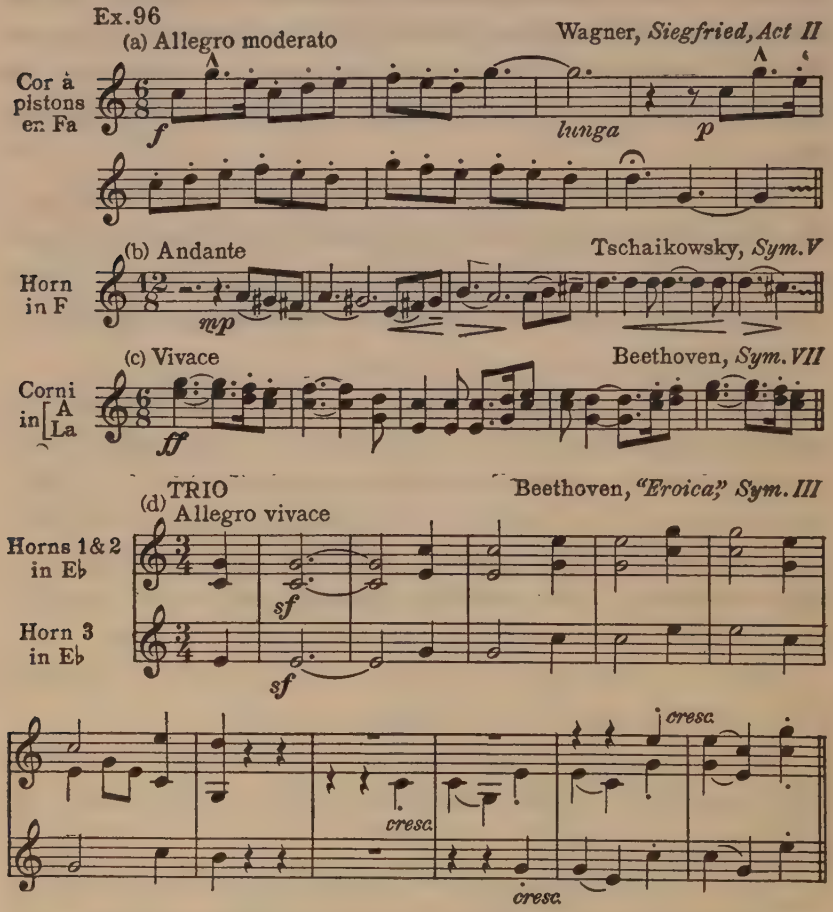
208. Horns and bassoons have nearly identical range, but their qualities are different. The bassoon's most intense tones are at the bottom of its scale, its most lyric quality in the *middle-tenor* compass. On the other hand, the horn loses something of its power below middle C, while its best melodic octave lies in the *high-tenor* range. In its middle register it may be compared to a fine baritone. It rarely has the character of a real bass.

209. A mute for echo effects is easily inserted in the bell, with a few moments of rest. Mark *con sordino.*

210. A peculiar hand-stopped (over-blown or brassy) effect is also used. Mark such notes with a (+) over each and write *brassy* or *cuivré.*

211. To understand the horn and write well for it, one should commit to memory certain characteristic passages, play them at their actual pitch, and hear them played by horns until they are thoroughly fixed in the mind. Among many that could be quoted, the following merit such study. The student is ad-

vised to reduce all these to piano score. They must be transposed to get the actual sounds, Ex. 96.



212. Notice that in Ex. 96(d) horn 3 plays above horn 2. This is generally best, though not necessary in all cases. See the same arrangement in Ex. 97. Dovetailing the horns in this way gives the odd-numbered instruments the higher parts to which

they are more accustomed. On the other hand, horns 2 and 4 should be given the lower parts.

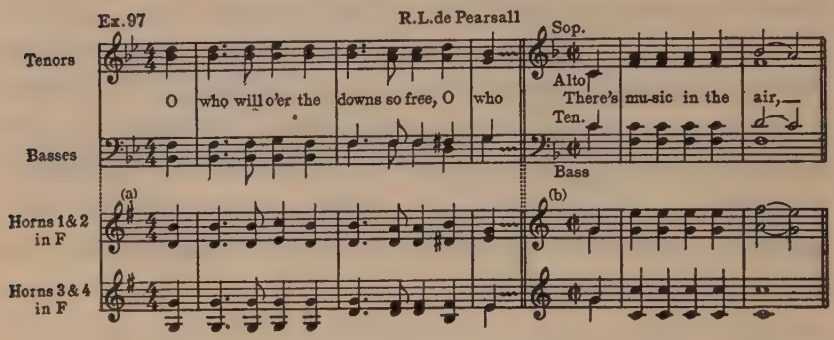
213. The old custom of writing for horns without a signature, as if their fundamental were C, is followed at the present day in most orchestral scores, but is wholly unnecessary. The student is advised to use a signature. This reform has been accomplished in the military band. Who will say that the horn player in the modern orchestra is less capable of using a signature than his brother in the band?

The horns as an independent choir

214. The *sounding* range of the horn in F embraces the entire compass of the combined bass and tenor voices and exceeds it somewhat at either extreme. The student may well say to himself, "My four horns in F are my male quartet." An arrangement of *Who Will O'er the Downs*, as begun in Ex. 97(a) would be beautiful and easy to play. This setting will sound in C, a major second higher than the original. Written in F the horns would sound where the voices sing it—a trifle less brilliant but practical. Notice the dovetailing. In this middle range horns 1 and 2 might very well play the two tenor parts (cf. Ex. 1, Liszt's four horns) but dovetailing is the best general method.

A mixed chorus with a low soprano, and in close position like the arrangement of *There's Music in the Air* here shown, is also excellent for our present purpose. Instead of transposing the original, the setting at (b) will sound where written for the singers. This piece arranged in open position would be poor for horns all in one key, since it would crowd horn 1 too high or horn 4 too low.

Who Will O'er the Downs Music in the Air



Assignment 30

Arrange *Who Will O'er the Downs*, written for male voices, for a quartet of horns in F, as begun in Ex. 97(a). Copy the original immediately above the horns for comparison. Do the same with *There's Music in the Air*, a mixed chorus, as begun at (b). Observe that in (a) your horns are transposing the original up to C; while in (b) they sound the original.

NOTE: Tenors singing from the treble clef, like horns in C are really transposing instruments. Because of this, close harmony for male voices, like Ex. 97, always looks awkwardly open.

Other numbers suitable for this treatment are:

Mendelssohn, *The Hunter's Farewell*

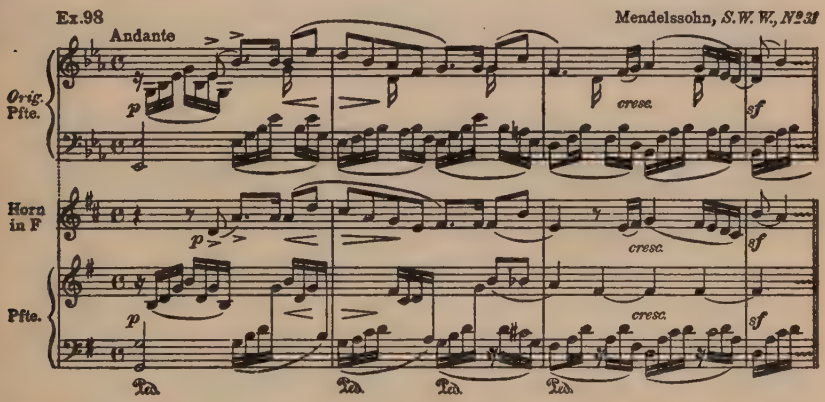
Koschat, *Forsaken*

Or any male chorus originally written for men by first rate composers, like Weber, Wagner, etc., in their operas. Not every mixed chorus is equally adapted to a male voice version (cf. Kling, pp. 281-2).

LESSON 31

Solo horn accompanied by the pianoforte or by strings

215. To arrange a song for horn solo with pianoforte accompaniment one must first choose the key which is best for the solo instrument, that is, the key which places the melody in the horn's most effective compass. This choice of key in Ex. 98 is G, which gives the horn in F a solo in the tenor range. Examination of the model will show that the melody is thus transposed down a minor sixth; but the accompaniment is lifted a major third, since to play it a minor sixth lower would be very poor.



216. In another fine *Song without Words* (*No. 19*), suitable for this treatment, one transposes the accompaniment up a major third, from A♭ to C. The horn (playing from the key of G) then transposes the melody down, as before, a minor sixth.

Schubert's *Hark, Hark, the Lark*, in the original for high voice is in C. To arrange this for horn solo, simply keep the accompaniment where it is and write the horn solo (in G) to sound in C an octave lower than the original.

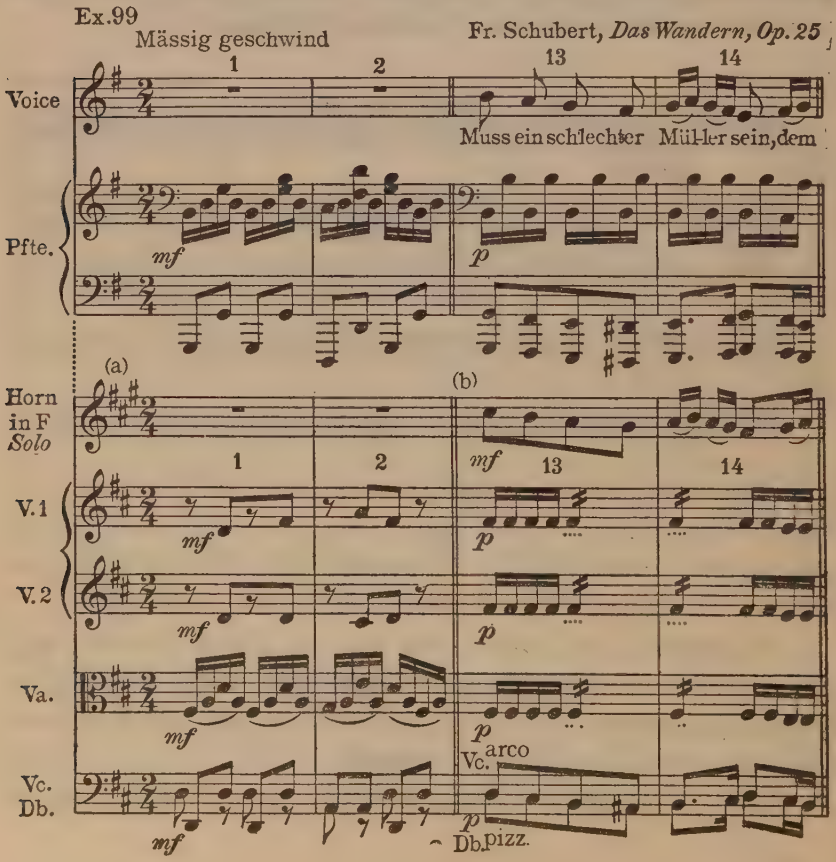
217. Arranging a song for horn solo with string accom-

paniment involves both the choice of key for the piece which will use the horn's best notes, and the same attention to the string support that was discussed in Lessons 15 to 20.

For example, Schubert's *Das Wandern*, shown below for low voice in G, would be fine for the horn, if the accompaniment were lifted a perfect fifth as shown, Ex. 99(a).

The adaptation of this particular accompaniment to good string idiom is, however, not a simple problem. The differences between piano and string treatment should be carefully studied.

Ex.99



Assignment 31

Arrange the first 18 measures of the *Songs without Words, No. 31* as begun in Ex. 98; or, if preferred, one stanza of *Hark, Hark, the Lark.*

A finer problem than either of the foregoing is to arrange Schubert's *Das Wandern*, using Ex. 99(a), (b) as models.

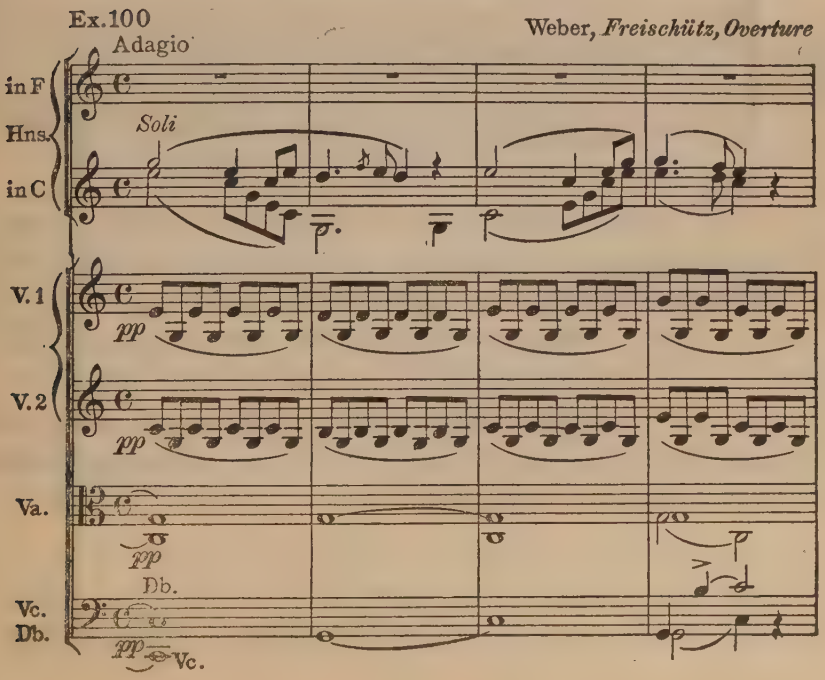
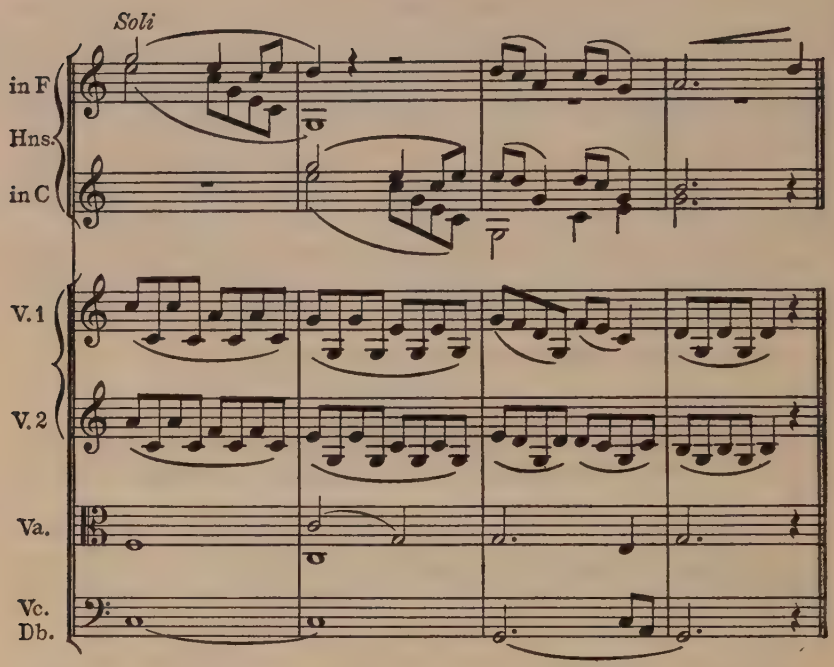
Other suitable numbers for horn solo, to name but a few, are:

Mendelssohn, *On Wings of Song*
Mendelssohn, *I would that My Love* (duet for two horns) in G
Mendelssohn, *If With All Your Hearts*, fr. *Elijah*, in F

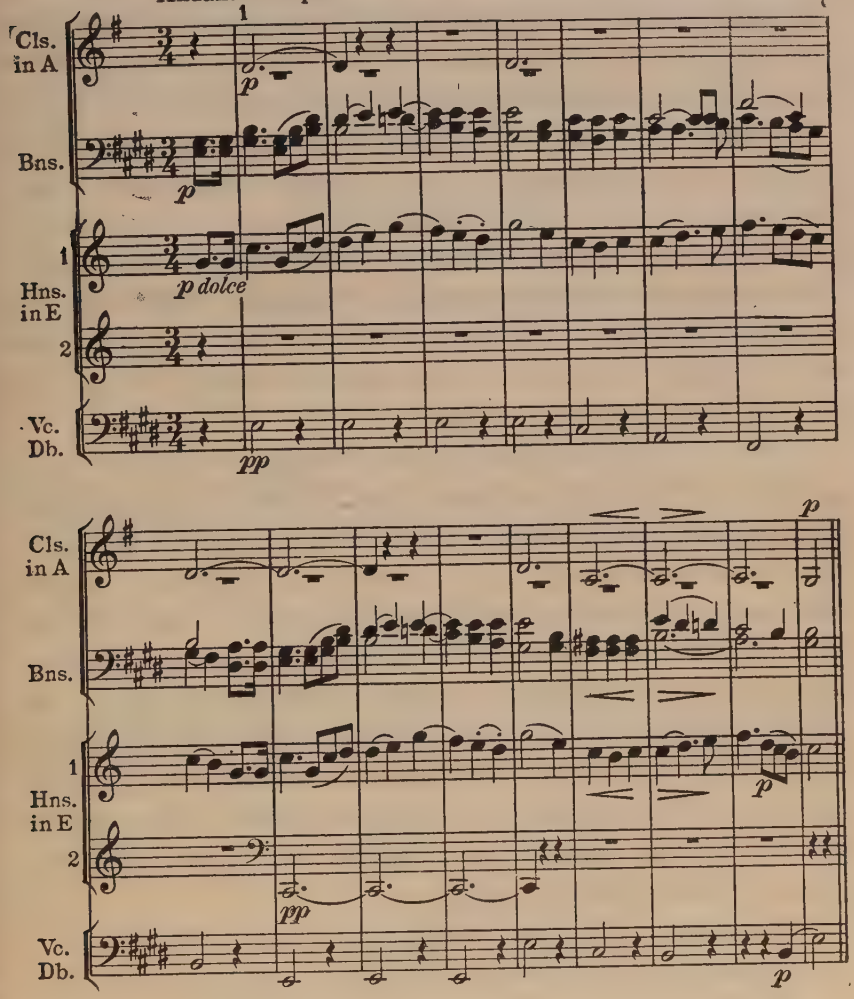
LESSON 32

Two or more horns with strings, or wood-wind

Ex. 100

Weber, *Freischütz, Overture*

218. Before passing on to the other brasses, some further study should be given to the horns. They are shown at their best in Weber's *Freischütz*, and in Mendelssohn's *Midsummer Night's Dream* music. Though written for the old hand-horn, these parts are so perfectly suited to the genius of the instrument, whether with or without valves, that two well-known quotations are given here; the first, horns with strings; the second, horns with wood-wind, Exs. 100, 101.

Ex.101 Andante tranquillo Mendelssohn, *M. N. D., Nocturne*



219. In Ex. 100, the supporting strings have complete harmony. In such a combination of horns and strings, incomplete string harmony would be ineffective. The harmony in the four

horns is delightfully rich and full in this example. If necessary two bassoons could be substituted for the second pair of horns, but with distinct loss of resonance. Three or more horns alone are better than horns with bassoons to fill in lacking harmony.

But in Ex. 101 the case is quite different. The horn solo is here of prime importance. In such a passage the wood-wind support is perfect, yet enough different in color to give the desired prominence to the solo instrument. The low *pp* strings enrich the harmony in an ideally unobtrusive manner. This horn solo is very easily read at the piano by slightly modifying the principle explained in § 196. *For a horn in E think the bass clef plus four sharps and play 8va.*

220. Horns, clarinets, and bassoons make a choir so ample, and of such beautiful resonance that Mozart, Beethoven, and other masters have written not only whole movements for them, but entire works embracing the conventional members of a suite or a sonata. These winds are usually employed in pairs, making a sextet. If an octet is used, a pair of oboes would be the first choice for the additional instruments; after them, the flutes. No student of orchestration can afford to omit a detailed study of at least one of the following number of chambermusic. All are available in the inexpensive pocket score format. For valuable practice in score reading the *Menuetto* movements in the first three works are invitingly simple.

Beethoven, *Op. 71, Sextet* (2 cls., 2 hns., 2 bns.) *in E♭*
Beethoven, *Op. 103, Octet* (2 obs., 2 cls., 2 bns., 2 hns.) *in E♭*
Mozart, *Serenade* (2 obs., 2 cls., 2 bns., 2 hns.) *in E♭*
Mozart, *Quintet* (pfte., 1 ob., 1 cl., 1 bn., 1 hn.) *in E♭*
Mozart, *Serenade for 11 wood-winds and horns, in B♭*
Sekles, Bernhard, *Serenade for 11 solo insts. (wd., strs., hn., harp)*

It is interesting to notice that the key chosen for all but one of the above works is E♭, permitting the use of B♭ clarinets in the smallest signatures. Most of them are written for horn in E♭—the key of the piece. Horns in E♭ are easy to read at the piano (cf. § 219)—*think the bass clef, plus three flats, and play 8va.*

Assignment 32

Reduce the *Menuetto* of Beethoven, *Sextet, Op. 71* to piano score for two hands. Show the actual sounds of the instruments, even though the setting fail to be wholly "pianistic." This should be an ink copy complete with expression marks, etc.

Also be prepared to play on the piano the horn parts in Exs. 100 and 101 *as they would sound*—a pretty problem involving horns in three different keys. And your *Menuetto* adds a fourth key. So here is a lesson in transposition.

PROJECT 5

(To follow Lessons 26 to 32)

Select and arrange a special number for concert use, scored for one or more horns, with wood-winds, strings, or pianoforte.

LESSON 33

The Trumpet and the Cornet

221. The natural trumpet has a history resembling that of the horn. Valveless, powerful, brilliant beyond any other instrument, difficult to play, and with a scale limited to the harmonics of its particular fundamental, it was in its element in the military fanfare or bugle call; at its worst in a cantabile melody. Its tone was too penetrating except for the *tuttis* to which it was largely confined, and where it was the natural "top" of the brass harmony.

222. The trumpet in C sounded where written; in B, B♭, and A it transposed down by the distance from C to the key in which it was crooked; but in D♭ (rare), D, E♭, E, F, F♯, G, and A♭ it transposed up. Parts for trumpets in all these keys may be found in the older scores. From about 1850, valve instruments gradually displaced the natural trumpet, which in modern scoring may be considered obsolete.

223. The modern trumpet is a valve instrument built in B♭ and readily convertible to A. Music for it is written in the G clef. Its transposition is identical with that of the B♭ and A clarinets. The ancient custom of writing for trumpets (as well as horns) with no signature, while still more or less in vogue, is not to be recommended. Give your trumpet parts a signature.

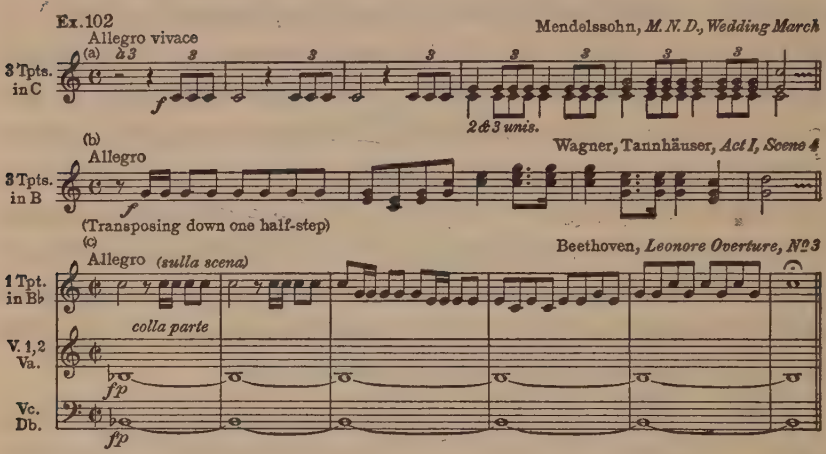
224. The trumpet is the most brilliant of the brasses. In flexibility, except for the trill, it closely approaches the flute. A trill is more or less tricky with the valve mechanism. Rapid note repetition is possible by double-, and triple-tonguing. A fine working rule is to keep trumpet parts in the easy range—from middle C up a tenth. Above that, except for occasional notes, both player and listener tire quickly, but in a *tutti* where volume is paramount for a brief space, high notes may, of course, be written. The rather poor notes below middle C may on occasion reenforce the horn, or help to fill the middle harmony. A beautiful *pp* is possible from middle C to the G above it.

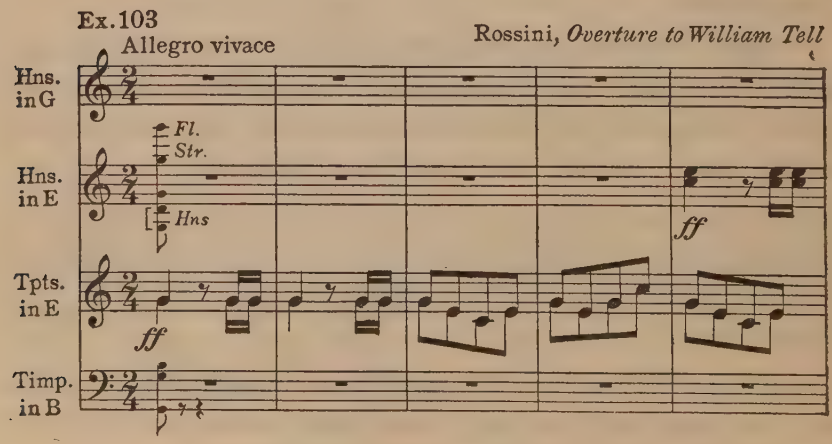
225. The mute may be used to obtain an echo effect, that might be fancied to resemble a phantom trumpet. Mark *con sordino* and indicate *p*, for such a passage must be blown softly. A distinctly different effect is obtained by using the mute and forcing or over-blowing. This may rarely fit into a dramatic situation, but over-used is simply vulgar. Indicate *f* as well as *con sordino*.

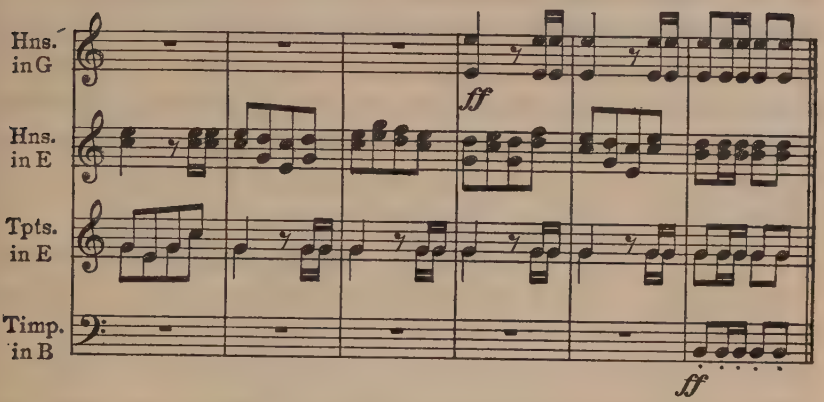
226. The cornet in compass, mechanism, and general character is very similar to the trumpet. Minor differences in mouthpiece, tubing, etc., require no discussion here. All trumpet parts in the modern orchestra are playable on the cornet.

NOTE: The violent prejudice expressed in some books against the so-called "plebeian cornet" and the equally violent praise of the old natural trumpet for its "noble tone" or condemnation for its frightfully difficult technic, may be disregarded by the student. The modern trumpet and the cornet may be so played by a good performer that very few, without seeing the instruments, could tell one from the other.

227. The natural thing to write for the trumpet is the military fanfare, for, even at the present time, the modern instrument loves the idiom of its valveless ancestor, Ex. 102.



228. Passages for horns, trumpets, and drums alone, when suitably placed, may be made effective in a high degree, Ex. 103.

Ex. 103 Cont.



229. But with the modern valve instruments it is neither necessary nor desirable to limit ones brass to this military type. From Wagner down, one may see marked changes in the treatment of this section of the orchestra, as we shall find in later examples. The danger of employing too much brass, of using it till it palls on the listener, should lead the student to make a thorough study of the "climax-value" of these, his reserve forces.

The Trombone and the Tuba

230. The trombone family, distinguished by its sliding telescoped tube, comprises four members, an alto, tenor, bass, and double-bass. The notation for these instruments has not been well standardized. The score reader will find parts for them in the alto, tenor, and bass clefs; and variously divided on one, two, or even three staves. But however notated, one may confidently rely on the fact that *all trombone music sounds where it is written.*

231. The tenor-trombone is the most important member of this old family, and the only one for which the student is advised to write. It is built in B♭—just an octave lower than the B♭ trumpet—and has a range which coincides with that of the tenor

and bass voices combined, cf. § 198. The trombone has remarkable dynamic versatility, ranging from a thrilling *ff* to a *pp* that can be made mysterious, plaintive, or even sinister. Though a good melodic instrument, it is not very flexible in tone production. The trill, and rapid scale passages should be avoided. Music for the trombone is best written in the bass clef, with the tenor clef for the higher passages. The alto clef should be avoided.

232. In the school orchestra score, one usually finds a single trombone part. One trombone is here made to serve as bass for the (usually) small brass section, to strengthen the bass in any *tutti*, or to take an occasional solo in place of the horn. It might be drawn upon to strengthen the bass in a string passage, but this is precisely the thing to avoid. It must be admitted that to keep all the players in an amateur organization interested and reasonably busy without violating every tradition of symphonic orchestration, is practically impossible; but the highest praise should be given to those arrangers, and publishers, who have provided the schools with scores in which utility and beauty are successfully blended.

233. It is in the symphony orchestra that the trombones come into their full glory, where it is customary to use three, with or without a tuba. Here a melody is seldom given to a trombone alone, but rather to all three of them in unison. In broad sustained chords—where trombones are at their best—the composer has an astonishing resource—a high light in his picture, and one requiring artistic handling.

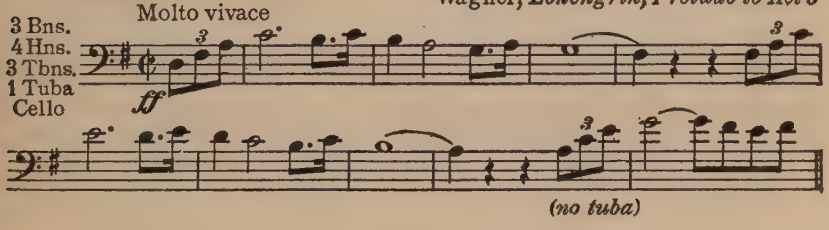
234. The tuba is the double-bass of the brass section. It is built in several keys, but the key is seldom indicated in an orchestral score. The tuba most commonly found in the symphony orchestra, is built in F, has four valves and a chromatic compass of three octaves from the F an octave below the bass staff. A

common type in the school band, hence oftener available in the amateur orchestra, is built in E♭, has three valves and the compass shown in the table, § 198. With four valves its compass extends to the low E♭ below that.

235. The tuba, in spite of its enormous size, has surprising flexibility, and marvelous dynamic range. It can assist the trombones in the softest chords, or in *ff* passages become a dominating monster. The tuba requires so much breath that it should not be expected to play a sustained melody *f* without being doubled in the unison or octave with other low instruments (cf. Ex. 104).

236. In Ex. 104 it is easy to see how Wagner burns this remarkable melody into the listener's memory. Such passages are not common. Their very effectiveness depends largely upon their infrequency. This score should be studied to see how the harmonic mass floats *above this melody.*

Ex. 104 Wagner, *Lohengrin, Prelude to Act 3*

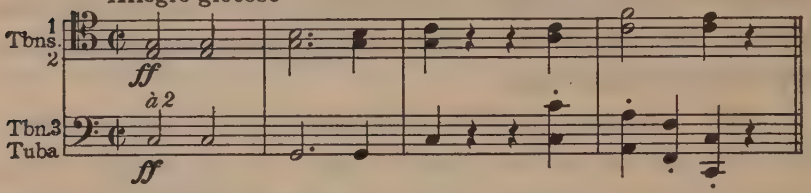


237. Harmony for the trombones, whether with or without the tuba, should be well defined, though not necessarily complete where other brasses are given the occasional missing note. In Ex. 105 are ideal types of heavy brass harmony in both close and open position. This arrangement on two staves with the tenor and bass clefs is the best, unless all the parts run too low.

Ex.105

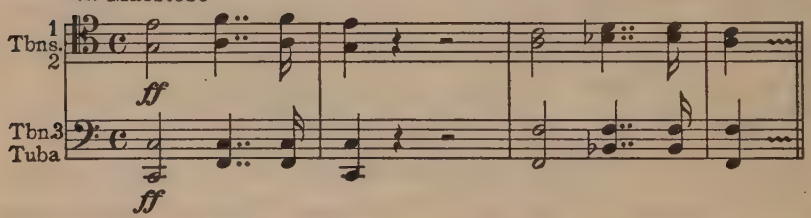
(a) Allegro giocoso

Saint-Saëns, *Marche Militaire*



(b) Maestoso

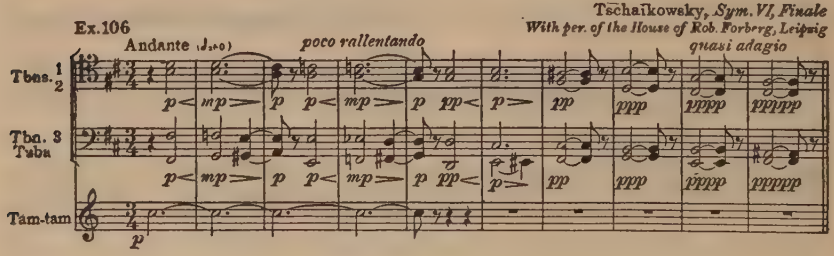
Rossini, *Siege of Corinth*



238. Now turn from the pompous passages just quoted to one where these four low brasses reduce the harmony to an unforgettable sigh, Ex. 106.

Ex.106

Tschaïkowsky, *Sym. VI, Finale*

With per. of the House of Rob. Forberg, Leipzig

Trumpets and trombones as an independent choir

239. It is seldom advisable to entrust long passages to these brasses alone, but trumpets and trombones in the hands of good players make a beautiful brass choir for which it is often desirable to arrange some short number. It will help the student to understand these instruments, if he keeps in mind the following:

Comparison of Brass with Wood

The trumpet is the oboe of the brass—incisive, brilliant.

The cornet is the clarinet of the brass.

The trombone is the bassoon of the brass.

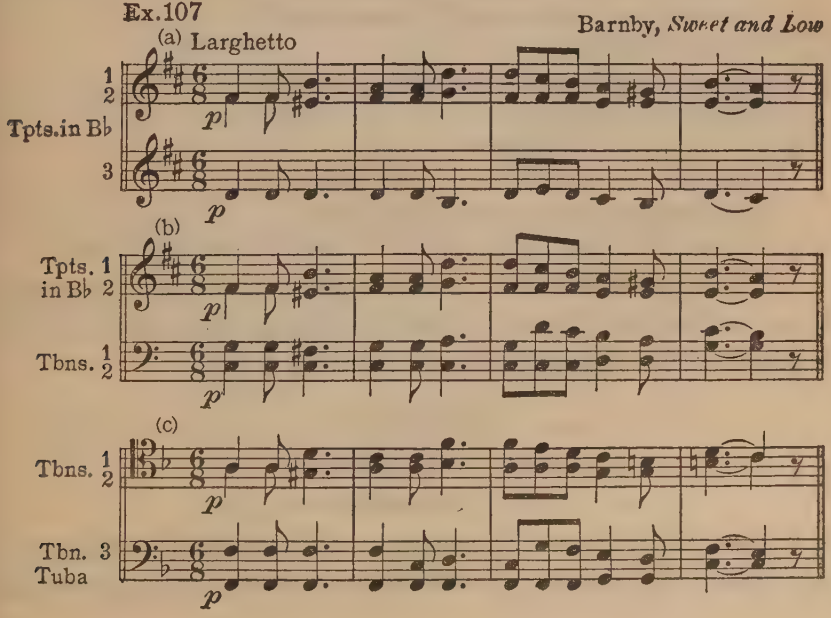
The tuba is the double-bassoon of the brass.

Of course these are merely approximations, fanciful perhaps, but suggestive.

240. Three settings of Barnby's *Sweet and Low*, Ex. 107, will show how to arrange this music for various brass instruments. At (a) three trumpets are given the music as arranged for a trio of female voices; at (b) trumpets and trombones do the mixed-voice arrangement, and at (c) trombones and tuba are given a male-voice arrangement. In these keys all the instruments play in their best compass, and the settings are sure to sound well.

Ex. 107

Barnby, *Sweet and Low*



Assignment 33

Arrange *Who Will O'er the Downs*, written for male voices, for three trombones and a tuba, to sound in B♭. Use the clefs as in Ex. 107(c).

Also arrange *There's Music in the Air* for two trumpets and two trombones, to sound in F. (These were done for horns [cf. Ex. 97]).

Solo trumpet or trombone, with pianoforte accompaniment

241. The student who has prepared the foregoing lessons will need little or no help here. It need hardly be repeated that the chief point to consider, in giving a solo to a brass instrument, is the choice of key (cf. § 215). Numbers suitable for this treatment are:

a) For solo trumpet, or cornet in B♭:

Mendelssohn, *Spring Song* (To sound in E♭)
Schubert, *Am Meer*
Wagner, Siegmund's *Love Song fr. Walkyrie*
Schumann, *Träumerei*

b) For solo trombone:

Schubert, *Morgengruss*, in C or B♭ (easy range)
Mendelssohn, *On Wings of Song*, in B♭
O Sole Mio (Neapolitan), in F, the chorus for two trombones

No assignment is made in connection with the above suggestions, but for variety in a program of arrangements, two or three members of the class might choose to arrange solos.

LESSON 34

The Kettle-Drums

(Timpani)

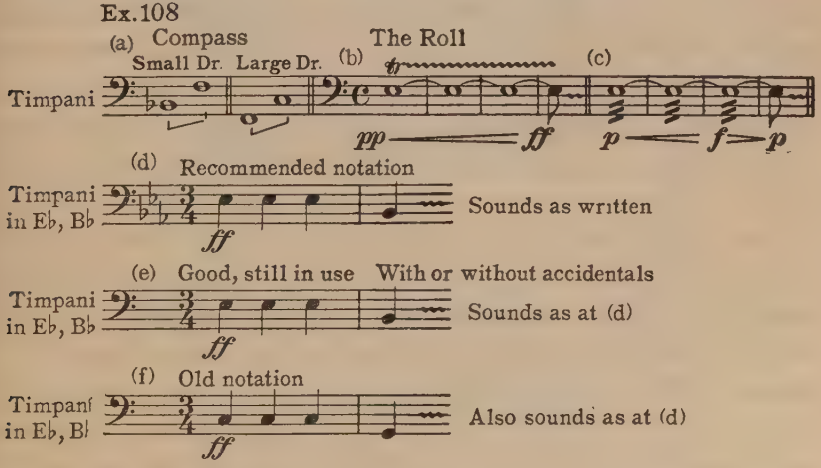
242. This most important of the percussion instruments produces a definite pitch. The compass of the two most used

drums is shown in Ex. 108(a). They are usually tuned to the tonic and dominant of the piece to be played. This tuning must be indicated with the part. A change of tuning during a piece, requires several measures rest. No change should be made in short pieces. It is for these two drums that the student is advised to write.

NOTE: In the modern symphony orchestra there are usually three drums. The latest invention is a pedal-tuned drum, whose pitch can be changed so quickly as to permit the drummer to play a melody, or even a chromatic scale.

243. Music for the drums is always written in the bass staff. The best way is to write with a signature, the notes sounding as written, as at (d). A notation still in use and very common is shown at (e). The old notation is shown at (f)—always written in C, like the old hand-horns. Two notations for the roll are shown in (b), (c). Dynamic signs are indispensable in drum parts; every *cresc.*, *dim.*, *p*, *pp*, *f*, *must be marked.*

Ex. 108

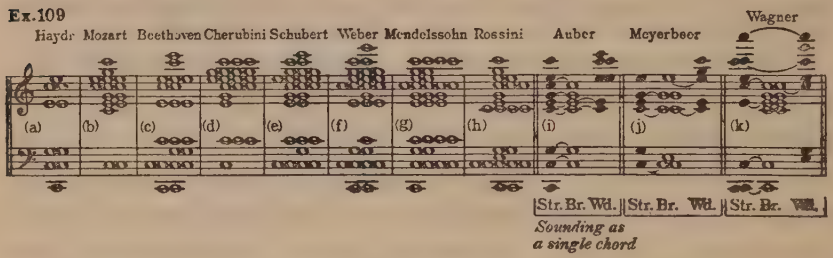


Distribution of chord-tones in a tutti

244. The first eight measures of Ex. 109 show the chord of C as arranged in a *tutti* by the masters named. Each measure

sounds as a single chord, the object of writing two or more notes in succession being to indicate how many times it is doubled, tripled, etc. The last three measures aim to show the distribution of string, brass, and wood, which, *though sounding as one chord*, are here separated to make their spacing, duplication, etc., more vivid.

Ex.109

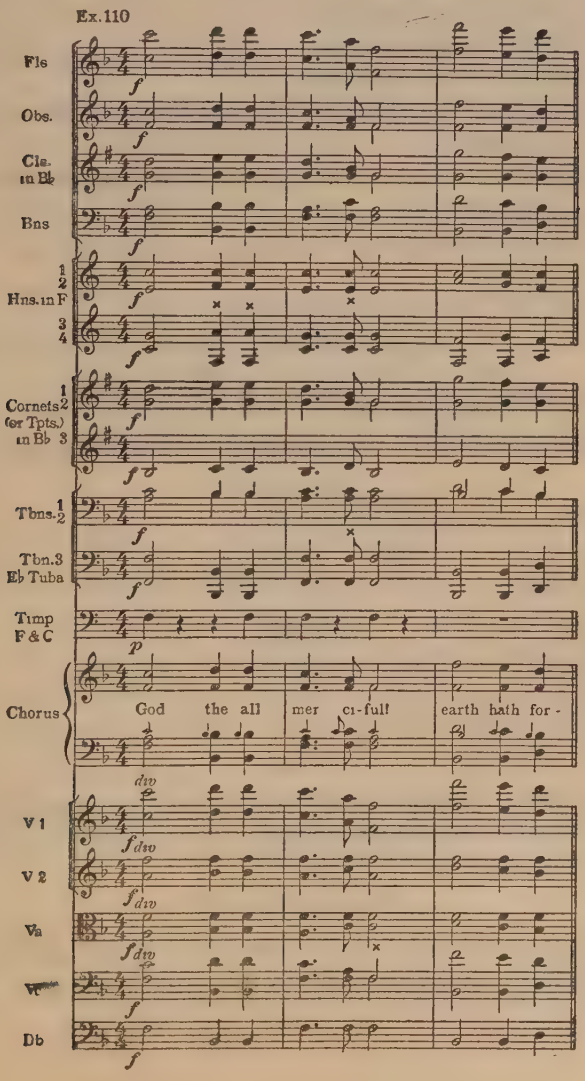

Haydn Mozart Beethoven Cherubini Schubert Weber Mendelssohn Rossini Auber Meyerbeer Wagner
(a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k)
Str. Br. Wd. Str. Br. Wd. Str. Br. Wd.
Sounding as a single chord

245. Certain points in the above example are worthy of careful attention. For example: (1) notice the predominance of the root, (2) few contain the third low, (3) there are more thirds than fifths, (4) a prominent fifth high is exceptional, (5) Nature's Chord is essentially the pattern, and, finally, (6) strings, wood, brass, are complete, interlocked, often duplicating the same tones.

246. The student is now ready to score a choral for full orchestra. So short a piece with every instrument playing straight through to the end would appear, at first glance, to present no problem at all, to say nothing of the need of variety or contrast. But a problem there is, namely, to score the music in such a way as to make it useful for a large number of smaller combinations. This is an important item in the technic of the commercial arranger. We have chosen our old favorite, for this study, precisely because it has figured in many previous lessons, **Ex. 110.**

Russian Hymn scored for large orchestra and chorus

247. This arrangement can be played by smaller groups as listed below; in each case the choral will be complete, and satisfactory, except Nos. 9, 11, and 12.



1. Strings alone.
2. Two clars., two bns.
3. Two oboes, two bns.
4. Fl.2, cl.2, two bns.
5. Ob.1, cl.2, two bns.
6. Fl.1, ob.1, cl.2, two bns.
7. All the wood-winds alone.
8. All the strings and wood.
9. Tpt.1 and hns.1, 2, 4; a poor combination alone, avoid where possible.
10. Tpt.1 and 2, tbns.2 and 3. Excellent, corresponds with combination 3.
11. All the brass alone, but tpt.1 is not enough soprano; add ob. or cl.1.
12. All the brass and strings alone. Poor.
13. All the strings plus any wind (wood or brass) that carries the melody.
14. The strings plus combination 2, or 3, or 4, or 5.

The four real parts and the filler are divided as follows:

Soprano

Fls., ob.1, cl.1, tpt.1, violins 1, vc. 1.

Alto

Ob.2, cl.2, hn.1, tpt.2, v.2, va.

Tenor

Bn.1, hn.2, tpt.3, tbn.2, v.2, va.

Bass

Bn.2, hn.4, tbn.3, tuba, vc.2, db.

Filler

Hn.3, tbn.1. (Assignment of the filler could have been greater, but should not be enough to fog the four real parts.) At (x) occur slight changes of no moment.

Assignment 34

Arrange this entire choral as begun here. (The original with filler is Ex. 4, in Lesson 3.)

LESSON 35

The Side-Drum

248. This little drum is a great noise maker for the theater orchestra and the band. Like most other percussion instruments its principal effect is its entry. The roll is written like that for the kettle-drum, but is best terminated by an accented stroke. All sorts of rhythmic figures are possible. One is likely to write too few notes for this drum. A single stroke is absurd. There are various ways to accent a single beat, called the *drag* and the *flam*—a veritable little cascade of small notes, from one to a half dozen, preceding the principal note. The student must examine drum parts to see these things. This drum can be muffled by loosening the snares or pushing the cords under them. This is often done in a funeral march, mark *muffled.*

Music for the side-drum is written on a single line or on a staff often shared with the bass-drum.

The Bass-Drum

249. This huge noise maker needs no description. Its heavy single strokes to mark the accent, etc., are familiar to all. The roll is effective; done *pp* it can be made ominous. It does not need a terminating accent, as with the side-drum. If a note is to be very short, write *damp* over it; otherwise the vibration will continue a little time. This drum can help develop the progress of a crescendo or climax.

Music for the bass-drum is written on a single line or on the bass staff often shared with the side-drum.

The Triangle

250. The triangle is a small steel bar bent in the shape of a triangle. A good instrument should have a tone as clear as crys-

tal. Few effects are possible. The trill is written like a drum roll. A single note to "top" a climax is sufficient to give sudden brilliance to a *tutti*. With soft strings and light wood the triangle is charming *for a little while*. Liszt gave the triangle a real solo part in his pianoforte concerto in E♭.

Music for the triangle is written on a single line or on the treble staff often shared with other noise makers.

The Cymbals

251. The cymbals consist of two large brass discs, the larger the better. These instruments have a technic all their own with four different kinds of strokes. A single crash to point a climax is represented by a single note. A roll is written in the usual way.

Music for the cymbals is usually written on one line, or it may share a staff with some neighbor.

The Chimes (Bells)

252. An octave of metal tubes hung on a frame resembling a hat-rack; not to be confused with the little high-pitched instrument described below. These long tubes are the nearest practical substitute for the huge low-pitched cathedral bells.

The Glockenspiel (Chime-Bells)

253. Two or three octaves of little steel plates (or strips) resting on a frame and struck with small wooden hammers. The tone is bright and crisp. Doubled with the high wood-winds it will come out with surprising brilliance. One of the most charming examples—and one to be memorized—is shown in Ex. 42 taken from the *Waldweben* in *Siegfried*.

Music for the glockenspiel is written in the treble staff and sounds *two octaves* higher than written. Written compass from

middle B♭, or the C below it, up to high C, according to the instrument.

The Xylophone

254. An instrument resembling, in construction, the glockenspiel, except that the strips are small bars of wood. Made with or without resonators. The tone is dry, has been likened to rattling bones, and is conspicuous in Saint-Saëns' *Dance of Death.* Written compass corresponds to that of the glockenspiel but sounds *one octave* higher than written.

255. Having made a bowing acquaintance with the foregoing percussion instruments, we may set them aside to be called upon when needed, and turn our attention to the school orchestra.

The School Orchestra

256. By completing Ex. 110, which is playable by at least fourteen different (smaller) groups, you have taken a long step toward the practical orchestration which is the concern of every commercial arranger as well as every school orchestra director. If not already familiar with the school orchestra scores and the plan of the Editors in laying out their instrumentation, your next step should be to examine this material (see the list on page 177).

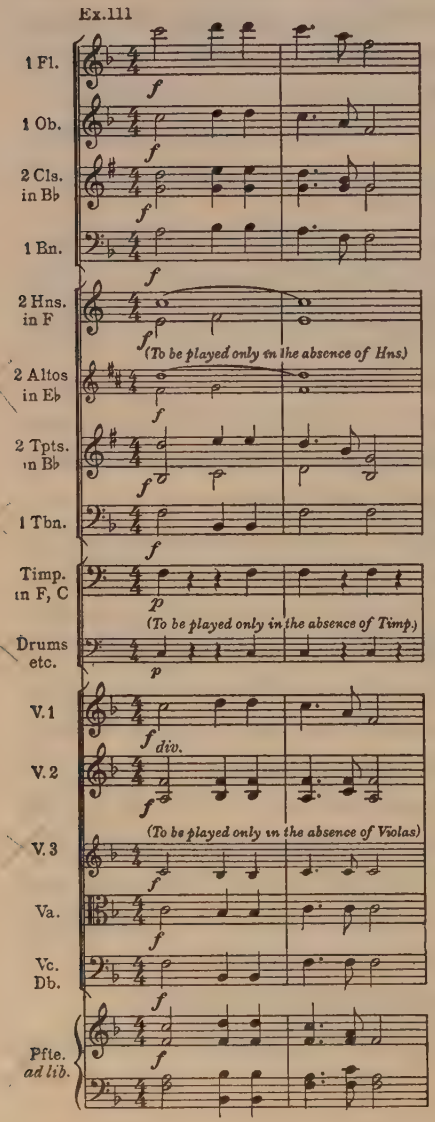
257. In order to be specific, and present a practical model for the next assignment, we shall follow the instrumentation used as a standard in the *Philharmonic Orchestra Series,* Oliver Ditson Co. The second page of the cover states the plan, the first page of the score shows the instruments. (Although any full score will serve, we recommend, for present study, Nos. 13, 14, 18, 20, and 27, all from the great masters.) Ex. 111 should now be studied minutely.

Russian Hymn scored for full School Orchestra

258. This arrangement can also be played by what is

termed the *Small Orchestra*, consisting of but two wood-winds (flute and 1st clarinet), three brasses (2 trumpets and 1 trombone) and the strings (pianoforte *ad lib.*).

Ex.111



Attention is called especially to the small orchestra. Its two woods take the soprano; its three brasses sound well even when played alone, the strings are the same as for the full orchestra.

Next, observe that the full orchestra score gives complete wood-wind harmony, although the one bassoon takes the tenor for part of the time; and that the horns enrich the brass section which would now come out very full and well balanced. Double-stops in the strings are avoided. Only the 2nd violins are *divisi*. Young players will do these undivided parts with fine assurance.

Substitutions

259. To get the most out of a "mongrel group" of instruments, the leader must be on the alert to make substitutions on short notice and even write out a part on occasion. For example, in this score, a C soprano

saxophone can play the oboe part, a C melody also (sounding an octave lower.) To use the alto or baritone saxophone for the bassoon, simply follow the device explained in § 196. Other substitutions should occur to the resourceful director. The first rate school orchestra scores now available are full of suggestions. See list referred to in § 256.

ASSIGNMENT 35

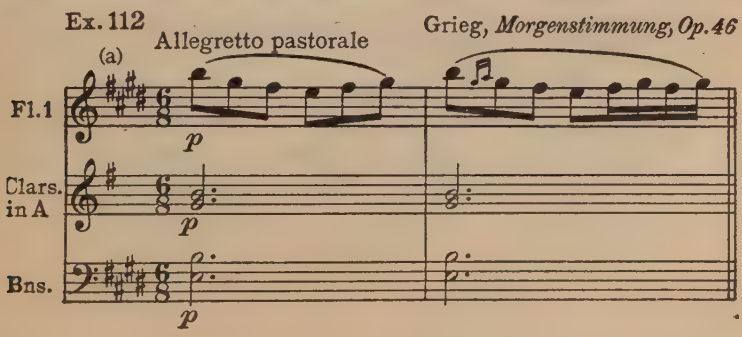
Arrange the *Russian Hymn* for both *full* and *small* school orchestra as begun in Ex. 111.

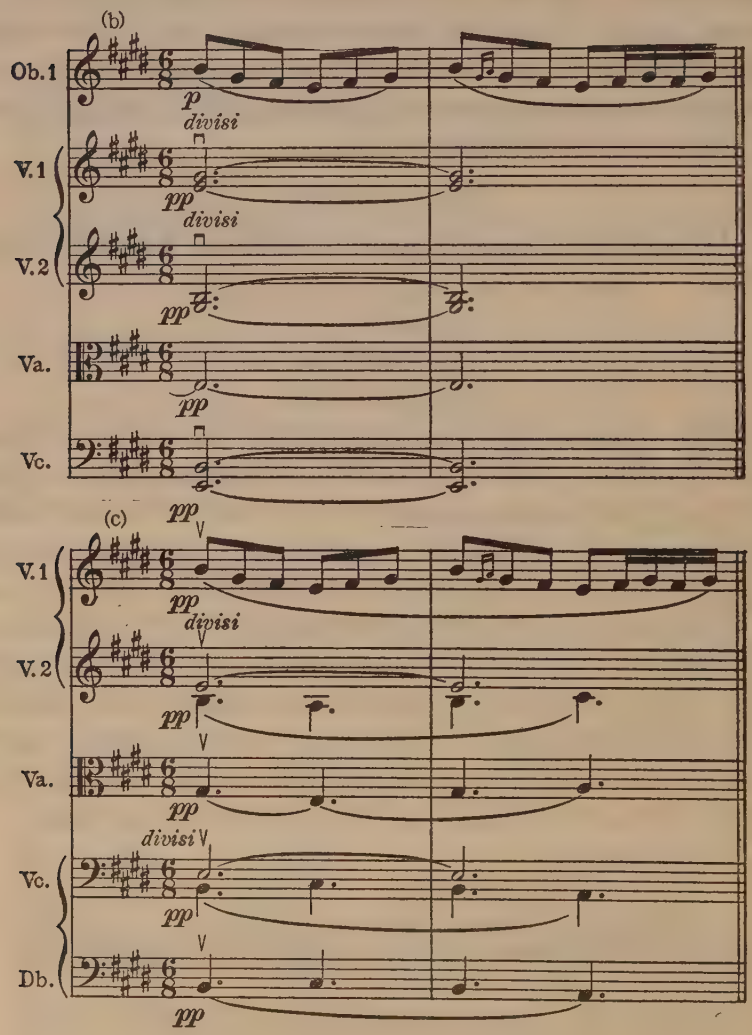
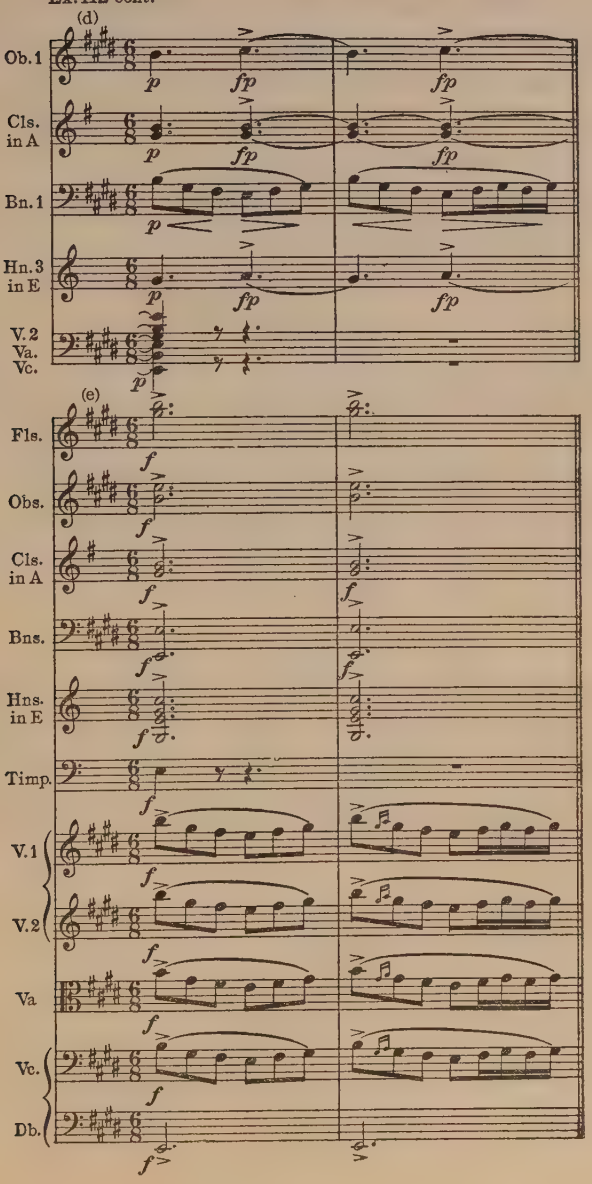
LESSON 36

Studies in Color

260. In Ex. 112 notice five different ways in which Grieg treats the opening motive of his *Morgenstimmung;* in (a), flute with wood-wind accompaniment; in (b), oboe with string accompaniment; in (c), all strings; in (d), all wood-wind and horn (launched on the closing quarter-note chord in the strings); and in (e), melody in three different octaves *forte* in the strings with solid sustaining winds, double-bass, and one stroke of the kettle-drum. Such contrasting treatment of the same theme within one piece should be weighed thoughtfully. Look for similar variety in other fine scores. Too many measures of *tutti*, even though it be well written, may become painfully flat and uninteresting.

Ex. 112



Ex. 112 Cont.

Ex. 112 cont.

(d)
Ob. 1
Cls. in A
Bn. 1
Hn. 3 in E
V. 2
Va.
Vc.
(e)
Fls.
Obs.
Cls. in A
Bns.
Hns. in E
Timp.
V. 1
V. 2
Va
Vc.
Db.

261. It takes time to develop a theme, or rather to give many different instruments a chance at it as Greig has done in the preceding examples, but the beautiful Haydn *Theme* (see Ex. 76), which was done for wood-winds, has the vitality and thematic character which make it an inviting little number for full orchestra. In miniature here are all the possibilities of color, contrast, and climax that one could ask.

Assignment 36

Arrange the Haydn *Theme*, Ex. 76, for combined Full and Small Orchestra, following exactly the instrumentation of the scores recommended in § 257. This will require three pages of score paper and should have an extra time allowance.

PROJECT 6

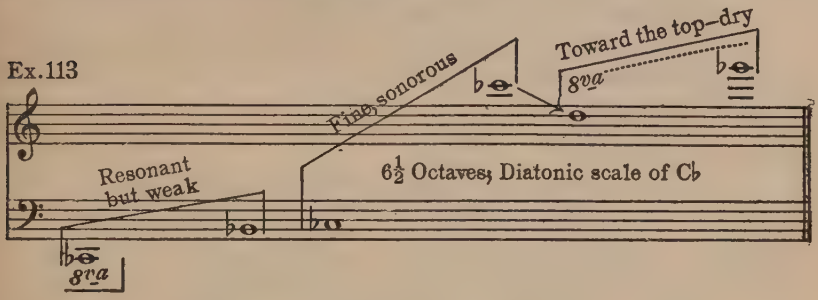
(To follow Lessons 33 to 36)

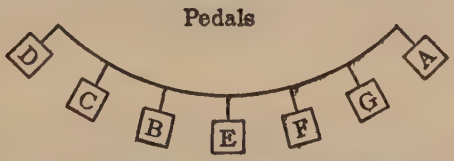
If you have composed a *Processional* or other suitable piece, now is a good time to score it for full *school* orchestra, but in such a way that even a small group could play it. In the absence of "original" numbers arrange a good short *March* of your own selection.

LESSON 37

The Harp

262. The compass of the harp is shown in Ex. 113 together with a diagram of the pedal mechanism.

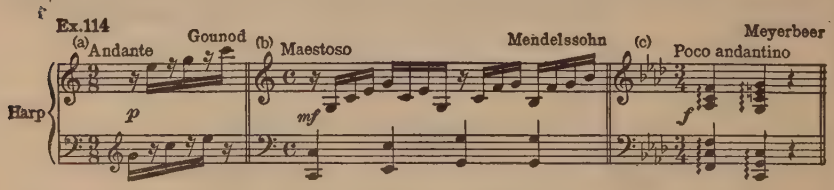
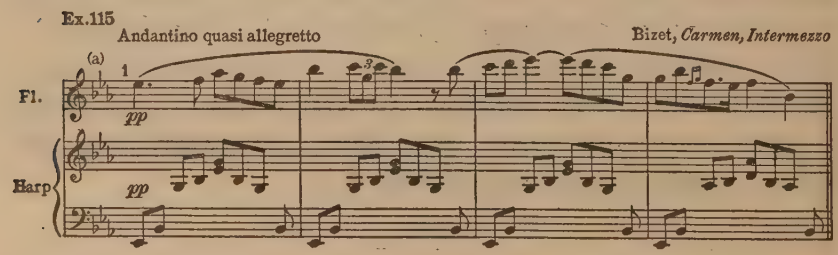
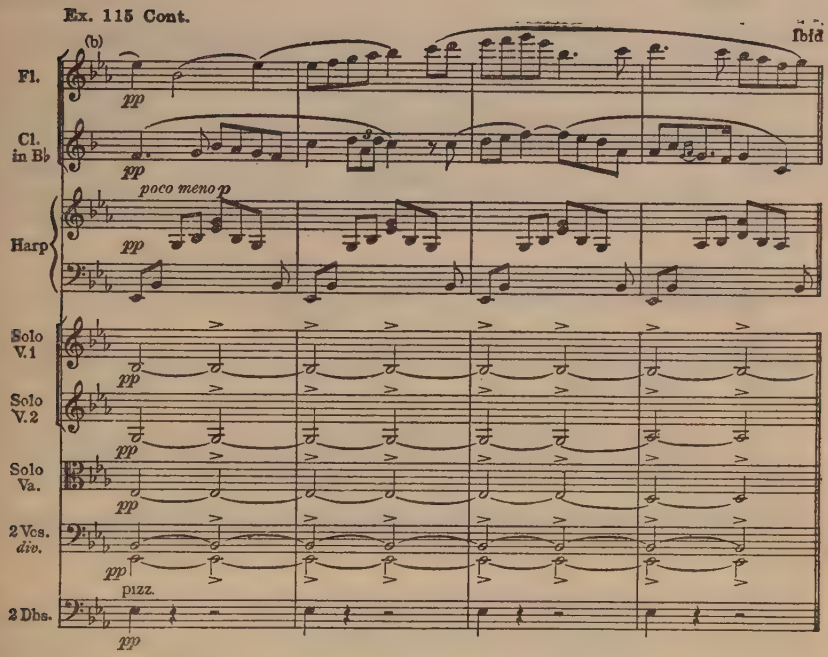


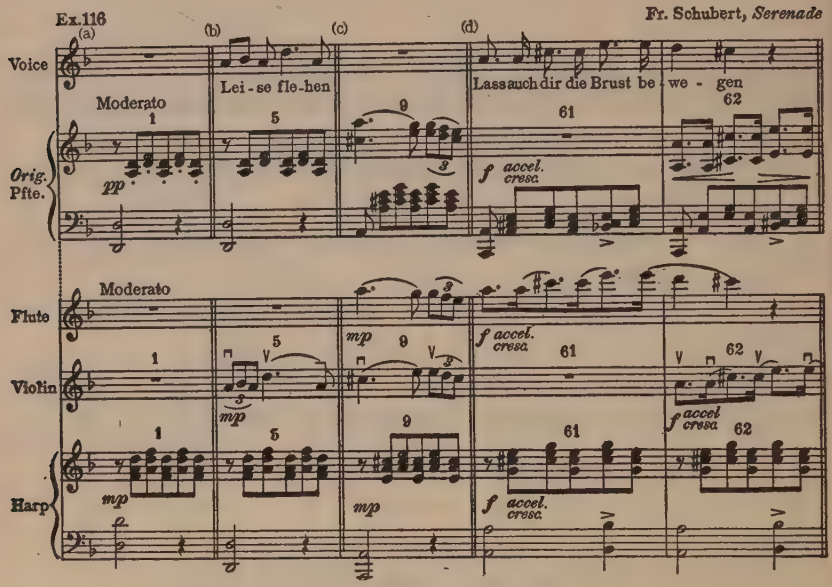


263. Seven pedals at the foot of the harp afford the means of transposition and modulation. Each pedal, on being depressed one notch, raises all the octaves of its letter one half-step; two notches, one whole-step. Since the scale of the harp is C♭, by the use of the pedals, all flat, natural, and sharp notes can be played, but because the harp is a diatonic instrument, and moving a pedal takes appreciable time, chromatic progressions and abrupt modulations are not suited to it.

264. In arranging music for the harp, the following points should be kept in mind:

1. Chords should "lie in the hand," preferably an octave limit, since the player uses the thumb and first three fingers only.
2. Sostenuto is impossible.
3. Glissando has a wider application than in piano music.
4. Harmonics are effective if limited to (about) the third and fourth octaves of the harp's compass.
5. Repeated notes, if rapid, must be on two strings, for example, C♭ and B.
6. Five-note chords and notably all those which lie low and thick are valueless.

265. The following types of harp music are all easy and practical, Ex. 114.

266. Bizet's use of the harp is in perfect keeping with the character of the instrument, Ex. 115—dainty at (a), rich and full at (b).



267. The best introduction to practical arranging for the harp with one or two other instruments, is to write a score like the following for harp, flute, and violin. It is assumed that the student has seen a harp and heard its various qualities demonstrated, also that an ear-training study of the piece to be arranged has been made from a good phonograph record, with the vocal score in hand. Here follow five representative measures from Schubert's *Serenade* with the suggested treatment below them. Study every detail, Ex. 116.

268. The original key (d minor) is used. At (a) the harp takes 3-note chords an octave higher than the piano. A literal copy from the piano would be too thin and colorless. At (b) notice the notation of the voice part compared with the corresponding violin part. At (c) first entry of the flute, coming in again in measures 14-15. At (d) flute leads off in its finest brilliant range, and now maintains a leading part to the end.

Assignment 37

Arrange Schubert's *Serenade* for harp, flute, and violin, as planned in the model. Work from a vocal score. Do not add melodic fragments. There is a record in which this is done but it can not be recommended. If desired, cut measures 29-60 inclu-

sive. Make a pencil sketch first (for the next class hour), the score to be completed in ink afterward. This should make a beautiful concert number.

Other numbers suitable for harp and one or more other instruments are:

Boisdeffre, *Au Bord d'un Ruisseau*
Schubert, *Ave Maria*
Saint Saëns, *The Swan*

LESSON 38

Orchestral Accompaniment to Voices

269. In scoring an orchestral accompaniment to vocal music, it is the voice that must receive the chief consideration. The words and the melody are of equal importance — neither should be drowned by the accompaniment. The voice has its "scope of greatest expression," that middle range where dynamic variety and perfect pronunciation are most easily attained. Here a declamatory passage will "come through" better than a smooth cantabile melody. Persistent repetition of a familiar word may justify its position in the higher range of the voice, and the use of the full orchestra, as, for example, the word *Hallelujah* in Handel's *Messiah*. But this whole question of balance between the voices and the accompaniment, of interplay of contrasting colors, must be studied at first hand in the concert hall and in master works. A brief statement of some general principles followed by representative types of accompaniment will be more useful here than any amount of discussion.

270. The voice unaccompanied, in short passages of recitative or phrases of a highly emotional character, is sometimes

strikingly effective. A single note in the cellos and basses is frequently all the support needed in long passages of recitative.

271. The timbre of the voice does not mix with that of the instruments. For this reason a vocal solo may be entirely above, below, or in the middle of the accompaniment without affecting the harmonic support: in other words, the accompaniment is in itself complete, *its lowest part is the bass.* Therefore a voice singing the fifth of a triad below the accompaniment does not transform a triad in fundamental position to a six-four chord.

272. Consecutive fifths which sometimes occur between a solo voice and some upper part of the accompaniment are unobjectionable.

273. Precisely because voices possess a unique timbre, harmony for them must be well defined—complete in itself. Poor harmony in the voices can not be corrected by the accompaniment. An empty triad in the vocal mass remains empty.

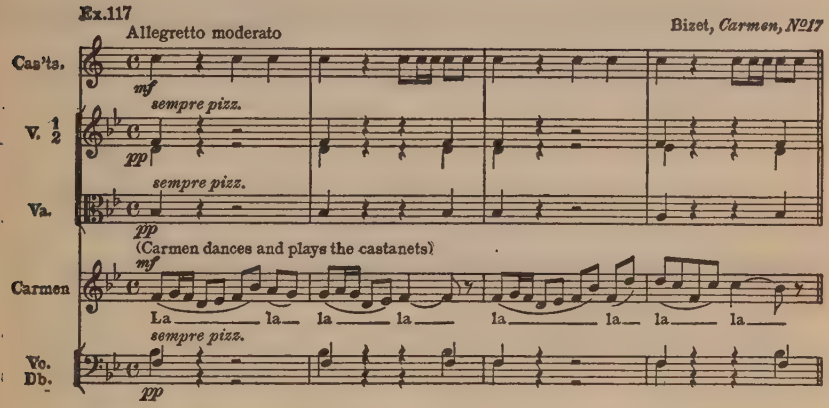
274. The primitive orchestra played the voice parts only. Thus all the voices were doubled by instruments. Even now a contrapuntal composition for voices may be treated in this way. For example the solidity and vigor of the *Amen Chorus* in the *Messiah* could not be excelled by any other (more modern?) usage.

275. Significant types of orchestral accompaniment to a chorus may be mentioned briefly as follows:

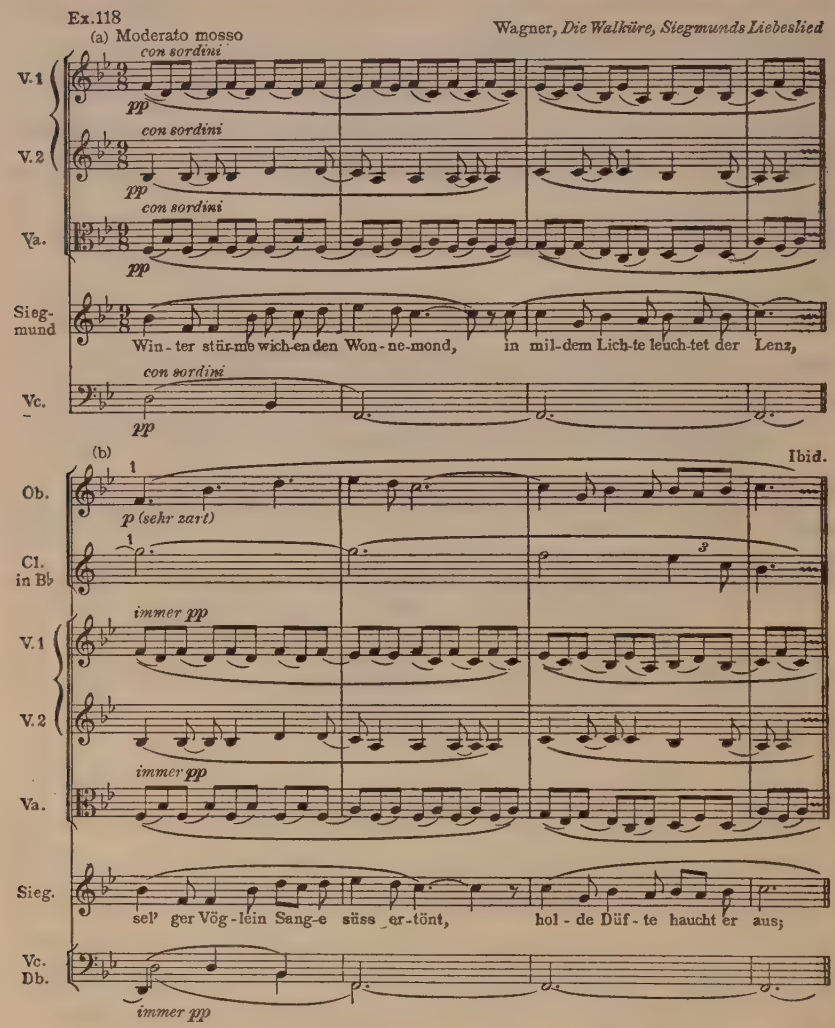
1. All the harmony in the orchestra, the chorus in unison (or octave) on the melody.
2. The melody in the orchestra, the harmony in the voices.
3. A simple, or figurated, accompaniment to contrapuntal voice parts.

Innumerable gradations from one type to another may be found and should be studied.

276. The strings alone, *pizzicato*, provide the daintiest of accompaniments to a solo. Carmen's song and dance with castanets is beautifully and adequately supported in this manner, Ex. 117.



277. Because the strings have the power to subordinate themselves even to the vanishing point, they are indispensable in a great variety of light passages. Sustained strings, *con sordini*, afford a transparent accompaniment especially suited to a solo whose inherent beauty deserves undivided attention. *Siegmund's Love Song* is begun in this way, Ex. 118(a). Later, Wagner adds a clarinet and an oboe (b), and still later draws upon his colossal orchestra with winds in threes and fours and two harps. This full score is available in the pocket editions at small cost and should be studied in detail.



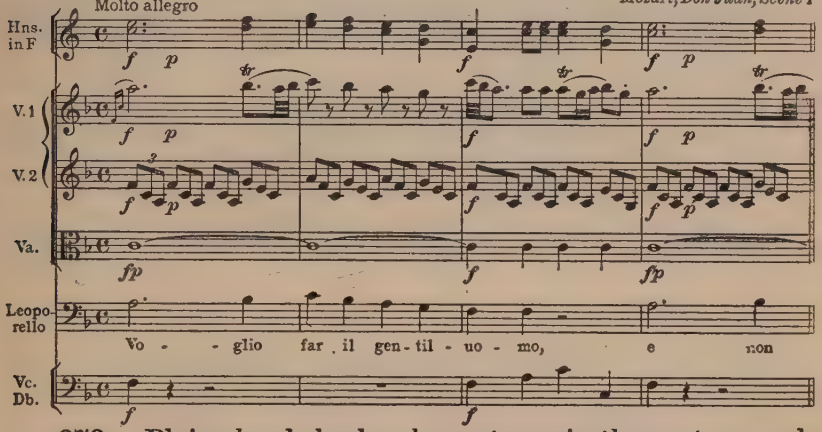
278. In the next number the solo is doubled in the octave by the first horn and in the double octave by the first violins—melody in the triple octave. This is highly effective if used spar-

ingly. Notice especially the dynamic marks, how the orchestra recedes to let the words of the solo come through, and plays ʃ *between* the vocal phrases, Ex. 119.

Ex. 119

Molto allegro

Mozart, *Don Juan, Scene* 1

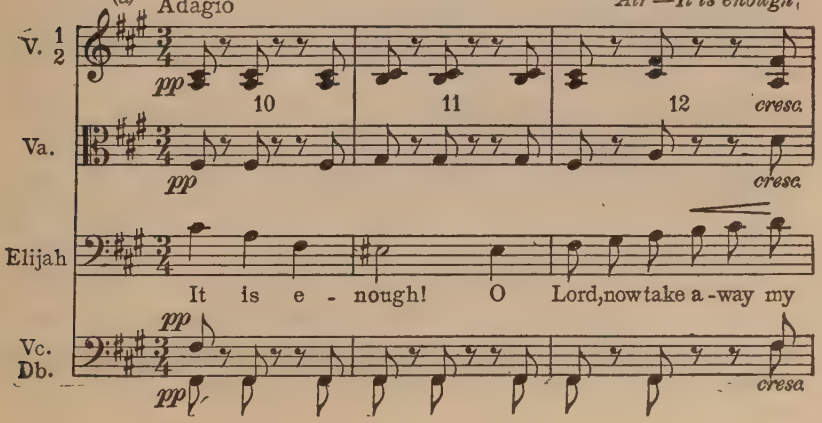


279. Plain chords broken by rests, as in the next example, throw the solo into bold relief. Elijah's words are of prime importance. This restraint in the strings is ideal [Ex. 120(a)], but see how woods, brasses, and strings burst forth *ff between* the vocal phrases later on (b).

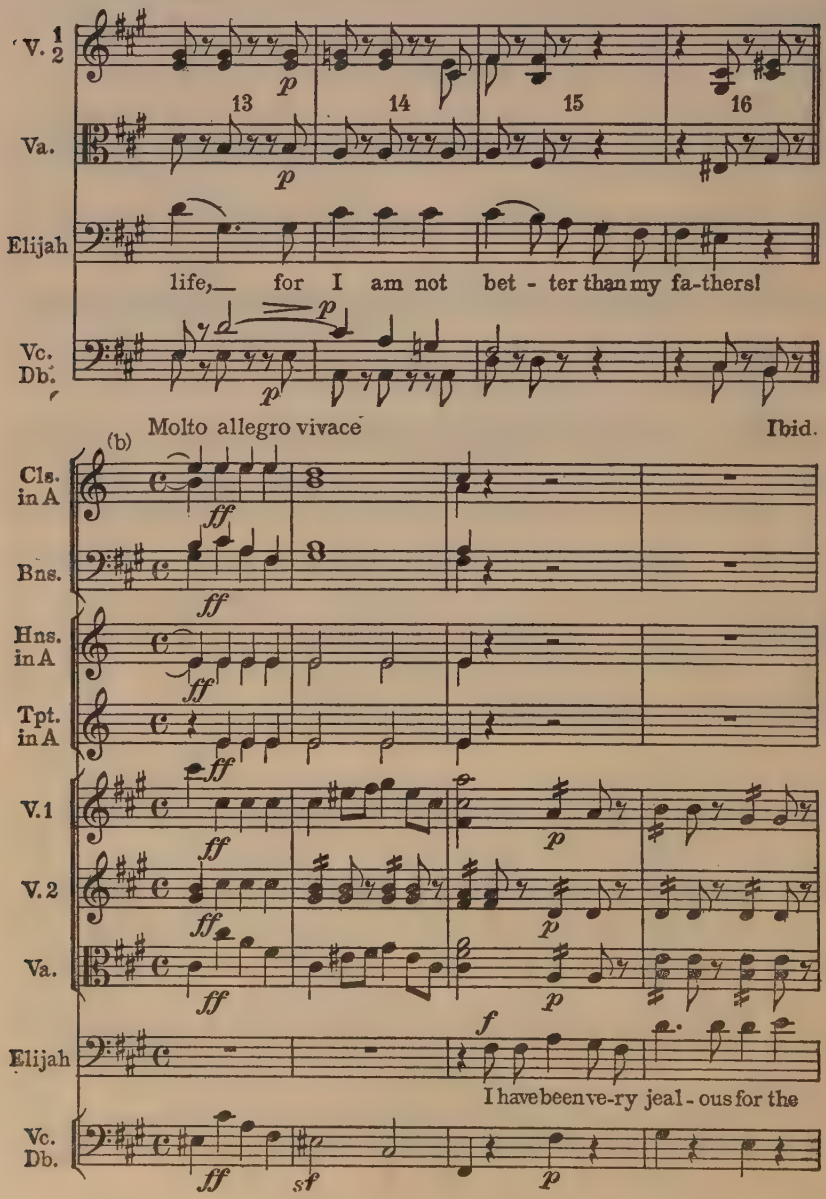
Ex. 120

Mendelssohn, *Elijah*
Air—It is enough

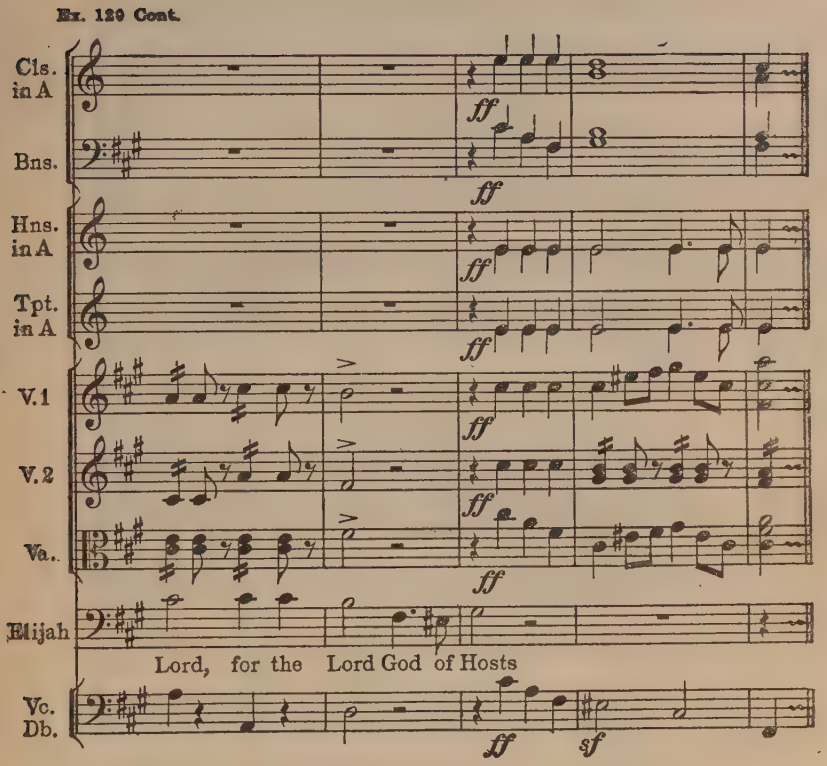
(a) Adagio



Ex. 120 Cont.

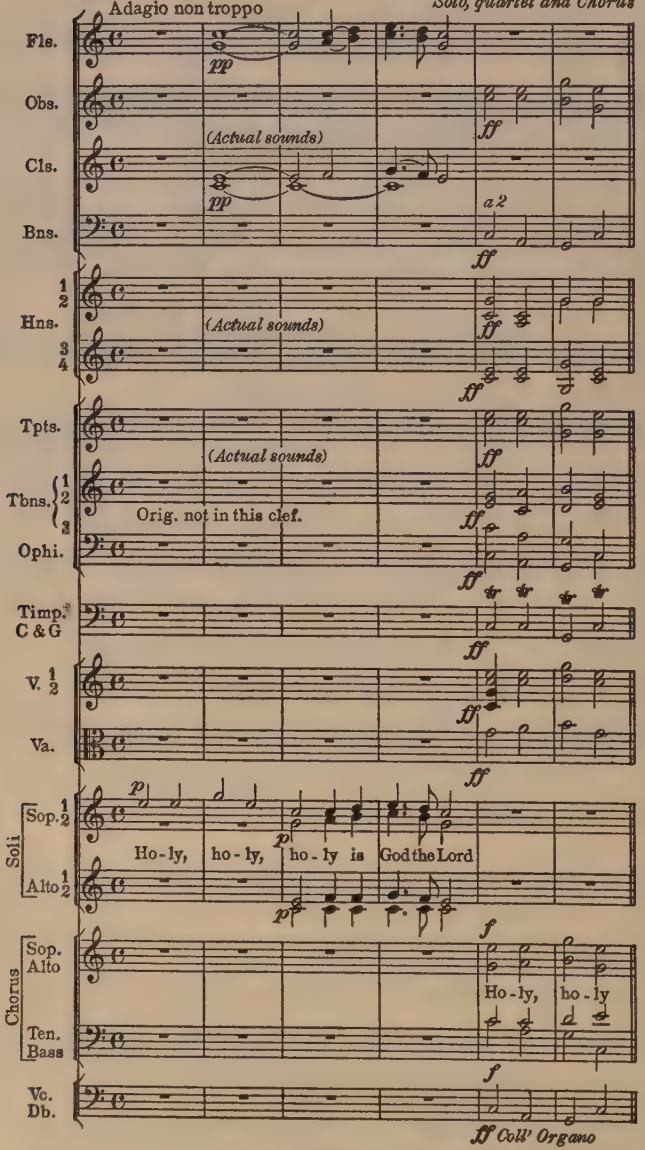

V. 1 2
Va.
Elijah
life, for I am not bet - ter than my fa-thers!
Vc. Db.
Molto allegro vivace
Ibid.
(b)
Cls. in A
Bns.
Hns. in A
Tpt. in A
V.1
V.2
Va.
Elijah
I have been ve-ry jeal - ous for the
Vc. Db.

Ex. 120 Cont.

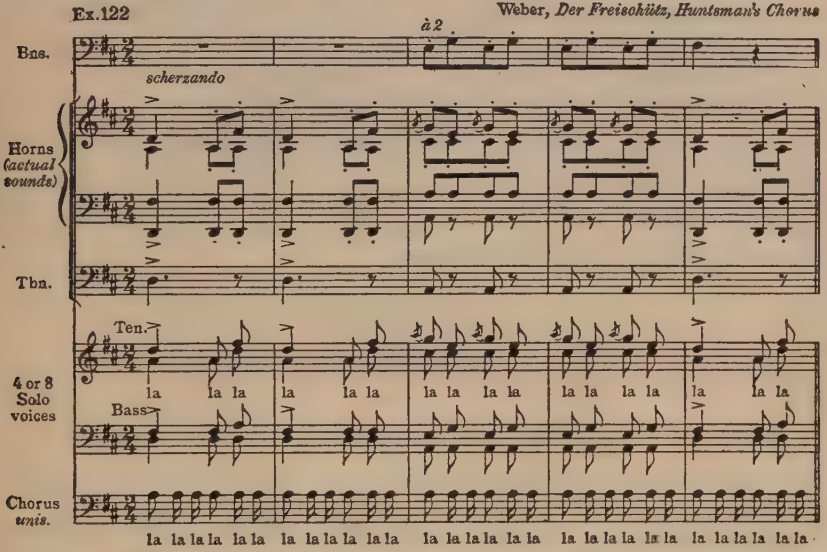


280. Striking contrasts handled with consummate skill are shown in the next six measures. The soft flutes and clarinets with female voices bathe the opening, "Holy, holy," in celestial light, while in response the incisive oboes, with all the brass, strings, chorus, and organ *ff* break forth with an unanimity and rugged power that is indescribably thrilling, Ex. 121.

Ex. 121

Mendelssohn, *Elijah*
Solo, quartet and Chorus

*Ophicleide, cf. § 7, reference table, under *Brass*.

281. The value of brasses to accompany male voices has long been recognized; for female voices they are less satisfactory. For his *Huntsman's Chorus*, Weber used three horns in D and one in A, dovetailed (cf. § 214); but for the student's convenience they are shown here as they sound, Ex. 122.

Ex.122 Weber, *Der Freischütz, Huntsman's Chorus*

Bns.
à 2
scherzando
Horns (actual sounds)
Tbn.
Ten.
4 or 8 Solo voices
Bass
Chorus unis.
la la la

Assignment 38

Working from a vocal score, give one of the following numbers an effective orchestral accompaniment. Assume that you have at command all or any desired part of a good full orchestra.

Mozart, *O Isis and Osiris, from The Magic Flute* (bass solo)
A. Goring Thomas, *Winds in the Trees* (sop. solo)
Mendelssohn, *O Rest in the Lord* (alto solo)
Mendelssohn, *If with All Your Hearts* (tenor solo)

We have now reached a point where suggestion as to what instrumentation would be best is purposely avoided. If the full score of Mozart or Mendelssohn is available, *do not look at it till you have finished this assignment.*

LESSON 39

On Making A Score and Parts

283. In making a score and parts, especially where a number of students expect to have their work performed by one group of players, uniformity of procedure is desirable. Playing from manuscript is not easy for amateurs. It is even more difficult when every successive piece at the rehearsal is in a "different hand." Notes, rests, cues, etc., should resemble, as nearly as possible, what the players are used to reading. Every one preparing a work for such a rehearsal should observe the following suggestions:

The score

1. For the score, use 18- or 20-staff paper. The eye takes in more at a glance on staves near together.

2. Fold together bookwise enough sheets to contain the entire score. Number the pages plainly, beginning on the first left-hand page.

3. The first page must show the complete instrumentation. After this first page, any instruments not used for a time may be omitted, but every such change must be indicated. Label all instruments in the margin of *each* left-hand page.

4. In simple scores it is usual to place winds in pairs on one staff, but if the rhythm of the one differs from the other carefully placed stems must distinguish each part.

5. Except as above, give each instrument its own staff, clef, signature, and dynamic marks. Tempo indication at the top of the score is sufficient.

6. A pair of winds playing in unison is marked à2 (cf. § 141), or double stems must be used. If one part rests, these rests must be carefully placed, and the stems for the other part turned up or down as the case may be. This is very important.

7. Much more abbreviation is legitimate in manuscript than in printed music. Use freely (especially in first draughts) the repetition sign (cf. Ex. 33), and *col violin, col cello 8va,* etc., to save copying the same melody in another part.

8. Number every tenth measure plainly in a square or circle thus: 10 20, preferably in red. Begin counting with the first full measure. Instead of numbering the measures in dances or other short pieces, a few letters (A, B, C, etc.) suffice.

The parts

9. For the parts, use 12-staff paper. These parts must be read from stands at more than twice the usual reading distance. A common fault is to make the parts too small.

10. If you do not play in an orchestra, examine the separate horn and trumpet parts of some good scores, especially those that are well cued, and take great pains to group rests, insert cues, etc., in the best way. Write cues in red ink.
11. Every part must have all the dynamic signs, tempo marks, title, and the name (or initials) of the arranger. Too much modesty in this last matter causes confusion in rehearsal and may cause loss of parts.

On Assembling a Score

284. To assemble even one score from the parts requires considerable time and patience, but there is nothing that will take the place of this valuable study. Whether you do much or little in orchestration, if you lead an orchestra, you should have assembled at least two or three good scores of diverse types. Excellent directions for this work may be found in Woods' *School Orchestras and Bands*, Chapter 14.

On Reducing an Orchestral Score

285. Another important item in the leader's preparation, is the reduction of an orchestral score to a piano score for two hands. In the *Symphony Series* by Dr. Percy Goetschius (Ditson), the editor has provided superior annotated piano arrangements of representative symphonies by great masters. A valuable study would be to reduce all or part of a movement of one of these full scores to piano score, and then compare your work with that of Dr. Goetschius. Success in this will require many trials and many comparisons, but the results are worth the effort.

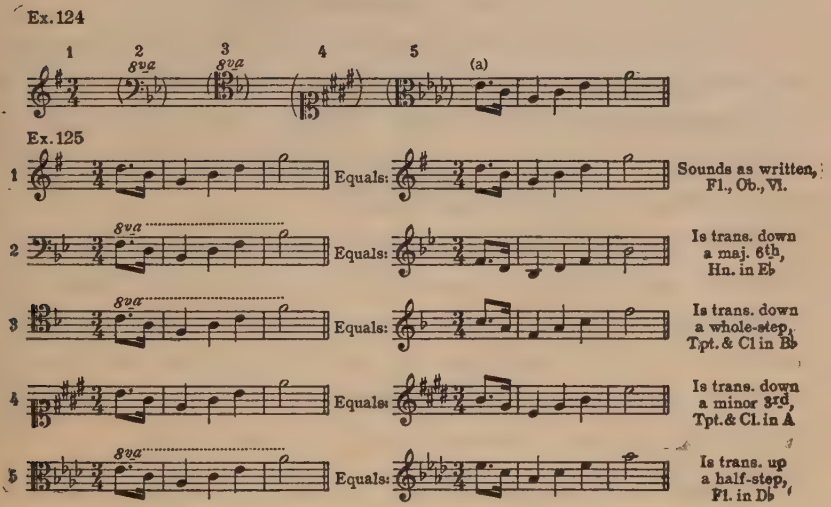
On the C Clefs

(Those who do not read the C clefs may omit this paragraph.)

286. When reading the written part of a transposing in-

strument, it is easy to think it *where it will sound* by changing (mentally) the clef and signature. Read the notes as printed, the clef does the rest (cf. § 196). For example, there are five ways to read Ex. 124(a) by using in turn the five different clefs with their signatures. Another way of illustrating the same process is shown in Ex. 125.

Table of a few easy (Mental) Transpositions by the use of clefs



Other transpositions can be made. No. 3 without the 8va reads a major ninth lower, where the tenor saxophone would sound; in No. 5, three sharps, instead of four flats, give what a trumpet in D would sound—a convenience in reading older scores.

Assignment 39

Assemble a score from the separate parts. Select for this a short number for full orchestra from one of the best editions.

Copy in ink. As you copy, notice the composer's (or arranger's) methods—his disposition of the harmony, his duplication of melody, his means of obtaining contrasts. This may be made a very valuable lesson in orchestration.

PROJECT 7

(To follow Lessons 37 to 39)

This project, the most important in the entire course, has been done annually in the Author's classes by a group of eight or ten students especially selected for the work. It should be called a *group-project* because it requires first rate "team-work" as well as a mastery of the preceding *Lessons.*

The work of this group is to prepare an orchestral accompaniment to a *Cantata*—a complete score and parts ready for performance. This will require of each student about 20 to 30 hours work. Studying the music and planning the instrumentation is the most interesting part of the task. Making the final ink copy of score and parts takes a lot of hard work.

An outline of procedure may be stated as follows:

1. Selection of the *Cantata.* It should have merit, be conceived orchestrally, have charm for the singers, require 20 to 30 minutes—not more. Grieg's *Spring Cycle* (Ditson) meets all requirements. Among others enjoyed by previous classes are Fletcher, *Walrus and Carpenter* (Novello), Busch, *Bobolinks* (Presser).*

*Permission to score copyrighted music must, of course, be obtained from the owners of the copyright. Scored for educational purposes, *sung* from vocal score and accompanied by the orchestra, a good *Cantata* soon makes scores of new friends. Our leading publishers have generously aided in the plan outlined above.

2. Determination of the precise instrumentation for which the score is to be made, and the number of players on each part. Since this is to be performed it must meet actual conditions.
3. Division of the *Cantata* into four or five portions, usually 100 to 150 measures each, and assignment of one portion to two students *working together*. Thus, working in pairs, eight or ten students are responsible for the entire work.
4. Measures numbered by 10, 20, etc., later matched in score and parts.
5. Preparation of a preliminary score in pencil, on which the teacher's advice may be sought if necessary.
6. Ink copy of score on 18- or 20-staff paper, parts on 12-staff.
7. A "sewing bee" in which the group come together, assemble the material, sew into suitable covers, and label score and parts ready for the first rehearsal.

APPENDIX A

Less Used Instruments

Piccolo: a small flute transposing up an octave, as shown. The military piccolo in D♭ transposes up a minor ninth; the flute in D♭, up a minor second.

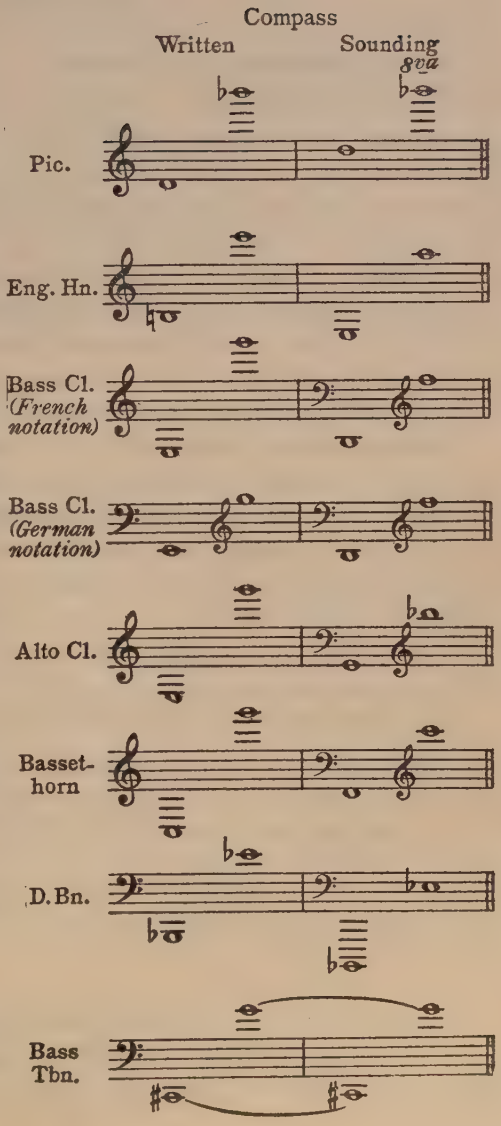
English-horn: an alto oboe with practically the same technic. A rare and precious color in the orchestra. Transposes down a perfect fifth.

Bass-clarinet: a large clarinet sounding an octave below the corresponding standard instrument. Two notations: *French*, written in treble clef: *German*, written in bass clef with treble for the highest notes.

Alto-clarinet: written range identical with that of the bass-clarinet (French notation), transposing down a major sixth like the horn in E♭. Treble clef.

Bassett-horn: not a horn, but an alto-clarinet built in F and transposing down a perfect fifth like the horn in F. Treble clef.

Double-bassoon: a large bassoon transposing down an octave like the double-bass (string). Bass clef.

Bass-trombone (in G): built on the same principle as the tenor-trombone. Often shares bass clef with the tuba.

APPENDIX B

Bibliography

Forsyth, *Orchestration* (MacMillan). Complete, up to date, beautifully written, indispensable to the advanced student.

Gevaert, (1) *Nouveau Traité d'Instrumentation* and (2) *Cours Méthodique d'Orchestration* (Lemoine & Cie.). The first of these is devoted to a study of the instruments, the second to their use in orchestration. Large, complete French works.

Hofmann, *Praktische Instrumentationslehre* (Dörfling & Franke). An exhaustive treatise in six books. English translation available.

Kling, *Modern Orchestration and Instrumentation* (Carl Fischer). A large variety of models for both orchestral and band purposes. Translated from the German by Gustav Saenger.

Rimsky-Korsakov, *Principles of Orchestration* (Berlin—Ed. Russe). Two vols., the first, largely text; the second, excerpts from the author's own works. An important Russian work, available in English.

Corder, *The Orchestra and How to Write for It* (Curwen & Sons). Excellent models, considerable attention given to "mongrel" groups as found in England.

Carse, *History of Orchestration* (E. P. Dutton). A recent and comprehensive presentation of the subject. Of special interest to those who wish to know how the orchestra "grew."

Woods, *School Orchestras and Bands* (Oliver Ditson Company). A small book packed full of important information for those who have to develop and lead these organizations in the American public school.

THE MUSIC TO BE USED IN THIS COURSE

The MUSIC SUPPLEMENT to *Project Lessons in Orchestration* (Price .75), which contains the music required in the lesson assignments, should be in the student's hands. For optional assignments and projects, the following standard numbers should be in a convenient Reference Library:

ORCHESTRAL SCORES (Miniature Editions)

Vienna Philharmonic Edition

Haydn, *Symphony G maj.*, Ed. No. 26

Mozart, *Symphony G min.*, Ed. No. 27

Beethoven, *Symphony V, C min.*, Ed. No. 1

Schubert, *Symphony VIII, B min.*, Ed. No. 2

Eulenberg's Kleine Partitur-Ausgabe

Mendelssohn, *Op. 61, Five Nos. fr. Midsummer Night's Dream*, No. 804

Tschaikowsky, *Op. 71a, Nut-Cracker Suite*, Ed. No. 824

Tschaikowsky, *Op. 74, Symphonie, B min.*, Ed. No. 64

ORCHESTRAL SCORES (Regular Editions)

The Philharmonic Orchestra Series, Oliver Ditson Company, Specimen Nos.

Master Series for Young Orchestras, G. Schirmer, Specimen Nos.

Orchestral Training by Mortimer Wilson, J. Fischer & Bro., first two grades.

Symphony Series, Silver, Burdett & Co., Specimen Nos.

PIANO MUSIC (Any Edition)

Schumann, *Kinderscenen*

Mendelssohn, *Songs Without Words*

Kuhlau, *Sonatinen, Op. 20, 55, 59*

Some good general collections like *Masterpieces of Piano Music*, Mumil Pub. Co., or *Piano Pieces the Whole World Plays*, Appleton.

VOCAL MUSIC

Schubert, a good collection of his songs.

Twice 55 Community Songs, Birchard & Co. (Complete)

Other collections of the school-song type.

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